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"Antares" was built for an Atlantic voyage. She is 105 feet over all, 22 feet beam, and is powered with two 160 h.p. Atlas Imperial Diesel engines

A European Cruise in "Antares"

Across the Atlantic and Back in a Diesel Cruiser

By HENRY M. CHANCE, II

ANTARES is an auxiliary ketch, 105 feet over all, 22 feet beam and 11 feet, 6 inches draft. She was built during the winter of 1929–1930 by John F. James & Son, at Essex, Mass., and outfitted by the Gorton-Pew Vessels Company, at Gloucester, Mass., with an Atlantic passage in mind, during the following summer.

Her power consists of two 160 horse Atlas Imperial Diesels, so her rig is short and heavy, designed for use in heaving to and also for steadying the vessel. *Antares'* construction is novel in that skylights have been replaced by booby hatches, so that in heavy going she can be battened down forward, powerful blowers keeping the air sweet and rendering the forward cabins and galley habitable as well as dry. Another point that might be mentioned is the radio equipment. There are two transmitters, one, a standard ship outfit capable of about 500 miles during daylight hours, and the other a short wave transmitter that can communicate over great distances, contacts across half the world being far from uncommon. To complete the radio department is a direction finder and an ordinary broadcast receiver with phonograph attachment. As to the rest of the equipment, there is, of course, an electric refrigerator designed to store frozen meat for an indefinite period, a gas stove, and Lux and Foamite fire extinguishers. She carries fuel for 6000 miles at 10 knots and water for at least two months. A more complete description of our ship appeared in YACHTING of June, 1930. Let us, therefore, continue with our narrative.

On Sunday, the 22nd of June, *Antares* had her trial trip, going from Gloucester to Boston Lightvessel to compensate the direction finder as well as to test the performance of the engines. Everything was satisfactory and a return was made to Gloucester that afternoon, and radio men, electricians, mechanics, riggers, friends and relatives disembarked.

At 7:20 p.m. we took our departure from Eastern Point Whistler and headed out to sea bound for Bermuda, with the stiff new engines turning slowly. The crew consisted of four paid hands; Zeb and Albert, engineers; Frank, a Nova Scotian cook; and Paul, a French Canadian steward and deckhand. The deck force was made up of Colonel Chance, skipper, his assistant in the navigating department and second mate being myself. The other two mates were Lee Downing and Tom Horrocks. The radio department had two members, Britton Chance and myself. The seamen (amateur, of course) were Eddie Landreth, Ned Swain and John Harrison. The last and most important member of the ship's company was my mother, chief strategist of the galley.

June 23rd found us still running at about eight knots, an epidemic of seasickness cutting into the ranks. It was a struggle to adjust oneself to the new ship, her

Shrouds are inboard, booby hatches with port lights replace skylights, and the deckhouse is of steel

motion, her unfamiliar machinery, and her strange rigging.

The following day was likewise uneventful, with the usual Gulf Stream squalls. On the 25th, about one hundred miles off Bermuda, we had the thrill of passing *Fame* as she drove, close-hauled on the starboard tack, into a moderate southwest breeze. She was a beautiful sight, and we circled her several times before rumbling on our more sure but less romantic way. We reported her to St. George's Radio, Bermuda, and our navigation department checked up on our position preparatory to the landfall expected that night. It has been whispered that they cheated and used the direction finder, although no official confirmation of this can be obtained, as the radio office and the bureau of navigation were as thick as thieves.

Nevertheless, St. Davids Head, Gibbs Hill, and North Rock lights appeared as scheduled at 11:30 p.m. The rest of the night was passed running very slowly, awaiting daylight to run in for a pilot and thus up to Hamilton.

In Bermuda we devoted ourselves to the typical Bermuda pursuits — bicycles, white suits at Trimingham's, a little work around the boat, a swim at Elba Beach. On Saturday, the 28th of June, we dropped down to St. George's to fuel, and the next day we left the harbor, set all sail, and began the great adventure — the crossing of the Atlantic. We laid a rhumb line course from St. Davids Head to Lat. 39°-30′ N., Long. 47° W. From that point we steered the usual great circle course "A" to Bishop Rock. We had selected course "A" in order to keep out of steamer traffic as much as possible.

The wind settled down to a steady southwesterly by the next morning and continued so for ten days. During that time we never touched sheet nor halliard. Day merged into day in the steady routine of sea life. For the first two or three days we kept the engines at reduced speed but after this our runs averaged from 235 to 240 sea miles per day, with one record run of 265 miles.

Our Fourth of July holiday was cut short in the afternoon by the refusal of the refrigerator to work, the sulphur dioxide strainer on the cooling coils having become clogged. When the pipe was disconnected the galley filled with the gas. Zeb, the engineer, came up the ladder like a commuter out of the subway. The best intellects on the ship cudgeled their brains until one genius thought of the diving helmet. This was dragged out of the lazarette and with its help Zeb was able to clean the strainer and connect it again, the blowers soon clearing the galley of the gas.

When she left Gloucester *Antares* looked like a coal lighter, but under the diligent efforts of all hands she became spotless, inside and out. Our further decorative efforts, however, were halted on the morning of the sixth of July by our running into a fog bank. This particular bank proved the forerunner of the chilly, gray weather which was to mark the rest of our passage to Southampton. The color of the water changed from

The radio direction finder and the long and short wave transmitters proved very useful

Below. Anchored in Hamilton Harbor, Bermuda

Brest Harbor, with its commerce and excited pilots, was a busy and colorful place

the beautiful Gulf Stream blue to a cold green, and a long, heavy ground swell set in from the northwest, "Direct from Greenland," remarked the mate with a shiver. From then on the weather was chilly, and the sky overcast, while fog alternated with rain.

About this time the skipper discovered that the steering compass in the pilothouse was developing an increasing easterly deviation. This troubled us throughout the whole trip, increasing to a maximum of 22 degrees on east and west courses and gradually fading out again on our return voyage. Throughout the trip, therefore, it was necessary to compare the steering compass with the standard compass aft several times a day, while azimuths were taken with the standard compass every few days to establish its correctness.

The Isle of Wight Pilot boat cruising off the Needles

During the whole trip Tommy Horrocks had been very much interested in someone who was to sail on the *S. S. America* from New York shortly after we had left Bermuda. In trying to communicate with the *America*, Tommy was very dubious not only of our ability in this field, but also of the effectiveness of our long-wave transmitter. One morning, in spite of predictions to the contrary, we got into touch with her. The result was naturally a great bull market in radio stock, but after the sudden pick-up in trade there was a slump in business for two days.

That afternoon, the second mate, stepping out of the pilothouse, spied, to the north and far astern, a large passenger vessel with two funnels. An examination showed them to have the red, white and blue markings of the United States Line. The *America* was asked by radio if she saw a yacht to the south of her. The answer was in the affirmative. Tom lost no time in dispatching a radiogram. That it was really the *America* was a great relief to all hands, for every ship that had passed since communication had first been established had been the *America*, according to Tom. At any rate, the message received prompt attention and the steamer altered her course and began to bear down upon us. Captain Fried wired as to our destination. In his next message he very courteously gave us our position (which showed, on comparison with ours, that the *America's* officers were very nearly correctly informed as to their ship's position, Lat. 47°-50′ N., Long. 24°-0′ W.) and asked, also, whether there was anything that he could do for us. This courtesy on the part of Captain Fried was tremendously appreciated by us, plodding our lonely way across the seemingly endless wastes of the Western Ocean. The large ship gradually drew up to us, heeling with the weight of the passengers that lined her rails. Tom's friend was on the top deck, outside the weather dodger, nearly falling overboard in her excitement; while he was at the mainmast cross-trees, waving with one hand and cold-bloodedly taking movies with the other. We were bombarded with torn paper and the band played "Hail, Hail the Gang's All Here." An exciting time, especially for the overwhelmed radio office. Our ensigns dipped and the passenger ship forged on ahead, her commander and passengers wishing us well by radio, salutations which were answered in kind by our own skipper.

On the morning of the tenth the navigators rose at 3:00 a.m. for star sights and were thankful when the day dawned clear, with a brisk northwest wind. The sea grew much more steep and choppy as we entered the shallower water on the European continental shelf. We expected to pick up Bishop's Rock at 4:15 in the afternoon. At 4:00 o'clock two lookouts went aloft and "Land, ho!" was called at 4:10 p.m., July 11th. *Antares* had taken 11 days, 19 hours and 40 minutes from Bermuda, a run of 2800 miles. A little later Bishop's was abeam.

Luckily, the night was clear, thus facilitating the run up the Channel. By evening we were off the Lizard, and Eddystone was passed during the early watches. We picked up the

Baquero is a typical Spanish fishing village on the north coast

Isle of Wight pilot off the Needles at 1:20 p.m. on the 12th, a run of twenty hours from Bishop Rock, and passed up the Solent and into Southampton water, where we anchored.

Antares was taken to Cowes, and hauled out at Marvin's yard and repainted. The skipper was delighted by the courtesy, efficiency and moderate charges of these people. Her coat of black paint gave *Antares* much more the appearance of a yacht than her former hospital-ship white.

From Cowes, *Antares* went to Southampton on the 18th of July, where she was refueled, returning the next day. Shortly after noon she started down the Solent into a strong southwest breeze, the boys getting her ready for sea with a speed and efficiency that was delightful to watch. As we passed the Needles, *Antares* took the first washing of her career. The seas came over the bow, bounced on the steel hood of the forecastle companion, came across the deckhouse and against the pilothouse windows in driving sheets. The well deck forward usually had one, and often two feet of water in it. The seas in the Channel were steep and choppy, too short to allow her to rise to them and high enough to wash her thoroughly. The 8 to 12 watch was a repetition of the afternoon, while the 12 to 4 was liberally sprinkled with channel traffic.

The morning of the 20th dawned gray and thick, with wind still dead ahead. Horrocks was called at 6:30 for an extra lookout, while Sparks manipulated the direction finder which had developed a death rattle, due to a loose connection. He therefore called Ushant Radio Compass Station and got a bearing from them, a process which was repeated every few hours. At 10:30 these bearings showed a 5-knot (or more) foul current. This, of course, made our log valueless. The seas grew much heavier and the water hit the deckhouse with jarring force. To slow down meant that we would not see Brest that night. Driving as we were, we passed several freighters, bound in the same direction, who could not pound into it as well as we.

On deck, conditions were no better than before and the visibility was only about a mile. At 12:30 the murk lifted somewhat and we were able to see the Island of Ushant with a number of steamers lying in its lee. The mantle of fog and rain soon closed down again and we edged our way around the island with only our radio compass bearings for a guide. As we turned we presented our broadside to the sea. Without the steadying hand of her sails, *Antares* rolled quite heavily, rolling her rail full occasionally. When we judged that we should be opposite the Goulet de Brest, we got another radio bearing and headed in. Soon two whistlers appeared, and not long afterwards we made La Parquette Lighthouse off the harbor. Flags were set for a pilot, and answered from the signaling station, but nothing happened. We waited a little while and then took her in unaided, going directly in behind the breakwater which forms the Port de Commerce. Another wait of 15 minutes in the driving rain, and we anchored. No sooner was the anchor in the mud than the pilot appeared, moustaches oscillating wildly. It developed that we must be moved. We were moved 100 yards for 40 francs. We gave him 100. His parting shot was, "Ah! maintenant elle est tres bien mouillée," as if the tip had given our anchor a firmer grip on the mud.

The next day all hands entrained for Paris and no more was heard of them for some time.

Our departure from Brest was made at 4:30 in the morning of the 27th. Once outside the harbor, we turned southward, bound to Santander, Spain. The day was cold and overcast, and though there was little wind there was a heavy ground swell so that the Bay of Biscay lived up to its reputation by a steep disturbed sea in the rips off the Chaussée de Sein. Off Concarneau we saw great numbers of the gaily painted French tuna yawls, interesting craft with their long outriggers, lofty bows and vari-colored sails.

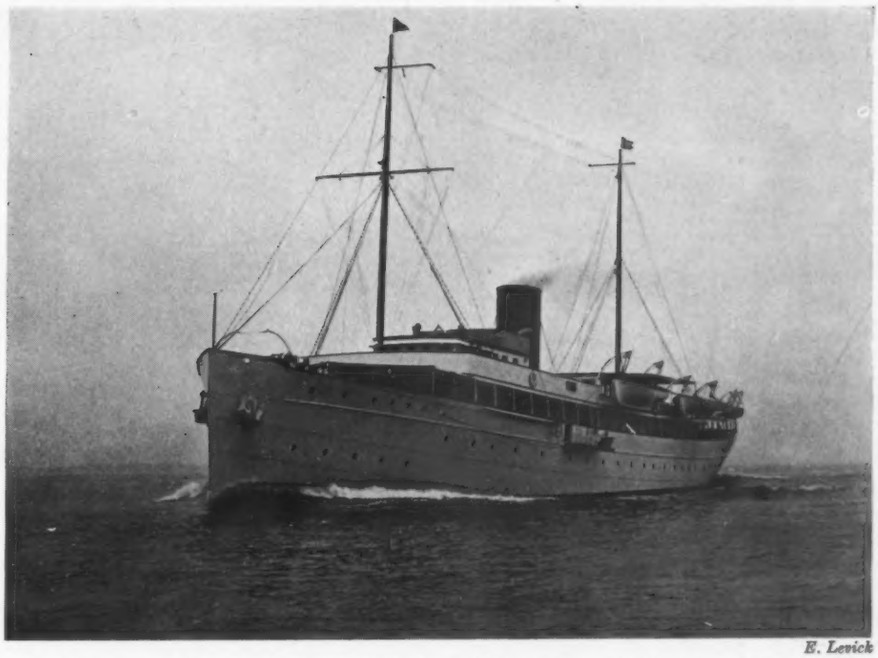
Monday, the 28th, was still cloudy and chilly. We were to make our landfall at noon and were all quite sure that "sunny" Spain was going to be a disappointment, as, indeed, it was as far as temperature was concerned. We could get no sights on this passage because of the overcast weather, but used our direction finder on the Santander Radio Station, running in on the bearing thus obtained. We made Cabo Mayor as expected and ran in without a pilot. Several Six- and Eight-Metre boats were racing, and, by some dexterous slowing down and speeding up on the part of Zeb and the officer on watch, we managed to pass through them. The Spanish cruiser fleet was in port, and we dipped, first to the King's residence, to His Majesty's Eight-Metre, which he was sailing himself, then to the five naval cruisers, and finally to the yacht club. We were very courteously answered from each.

On the third day of our stay the Commodore of the King's Fleet, Senor Carriaga, came aboard bringing with him two of the Infantes, Don Jaime and Don Juan. They were both very friendly and seemed much interested in our equipment, examining *Antares* from forecastle to lazarette. The next afternoon His Majesty, King Alfonso XIII, came aboard, accompanied by Queen Victoria and both Infantes. His Majesty went over the whole boat, even going down the iron ladder into the engine room.

That same evening, August 1st, we left Santander, heading west, out of the Bay of Biscay. But not so fast, *Antares*, hard times are coming. You haven't seen the last of this place. At midnight the wind came ahead, about west-southwest, and began to blow very hard. The second mate was forced to slow her down early next morning. The sea had made up fast and driving into it at ten knots made it very wet on deck. Britt, the radio operator, was up during the 4 to 8 watch, working Tuckerton, New Jersey, with a lot of telegrams. He was quite seasick and would, every once in so often, tell Tuckerton to wait while he visited the rail. All day we ran slowed down. The sun shone weakly for a few minutes about 4:00 p.m., giving us a sight, the line of position from which showed that we could make a small harbor of which King Alfonso had told us. As with the heavy head sea and foul current we were not doing much better than five knots, and as the hospitality of our friends at Santander had left us all pretty well exhausted, we decided to put into Baquero Inlet

Anchored during a Biscay gale

(*Continued on page 102*)



E. Levick

"Vanda," Ernest B. Dane's 220-footer, holds the speed laurels among the large Diesels. Two 1500 h.p. Cooper-Bessemers drive her at 19 m.p.h. or more. "Vanda" is from designs by H. J. Gielow, Inc.

Higher Speed for Diesel-Driven Cruisers

Decrease in Weight of Diesel Motors Makes Possible Lighter and Faster Boats

By REGINALD W. CROWLY

LADY NINA'S achievement of 31 miles per hour over a measured mile was the first demonstration that the light weight Diesel motor has been promoted to speed boat service. This still remains an exceptional achievement, but other notable advances in speed of Diesel boats have been registered almost contemporaneously.

Lady Nina is a 72-foot express boat designed and built by Purdy for Charles E. Proctor, who will use her for commuting between New York and his summer residence on Kings Point, Great Neck, Long Island. Power is supplied by two 300-horsepower Diesel motors of Treiber design, revamped, and weighing 5500 pounds each. Her speed mark was set last December and she was then laid up until this spring.

Until the end of the summer of 1930 the maximum speed of Diesel cruisers had been exemplified for a period of about five years in Carl Fisher's *Shadow K.* Since her trials in December, 1925, when she was timed at 19.07 miles per hour, there was no Diesel boat of her length which could pass her. She, too, was Purdy-designed, but she had only her lines and a certain lightness of hull construction to lift her speed, for her engines were in no way lightened, being standard Wintons of that period.

Anson Hard's *Avalanche*, a few feet longer than *Shadow K.*, and with 200 extra horsepower, was timed at 17.98 miles per hour over the same measured mile. She is sometimes reported a faster boat, but the measured speed trials indicate the contrary.

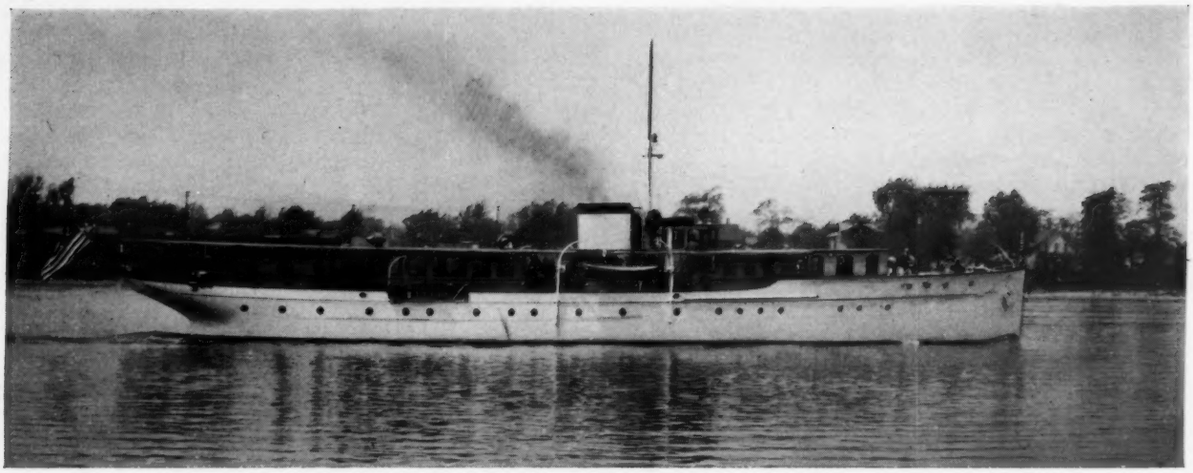
So, too, Harold Vanderbilt's *Vara* is quite widely regarded as faster than *Shadow K.*, which she much resembles in hull form, being by the same designer, but about five feet shorter. Her measured mile speed was a flat 16 knots, equivalent to 18½ miles per hour, which places her thus midway between *Shadow K.* and *Avalanche.*

These three boats were the leaders of the Diesel cruiser fleet until last autumn. They are much of a type and much of a length. The first two are Winton-engined, but the Vanderbilt boat has Treiber motors.

With the advent of *Elda* and of *Normada*, the maximum Diesel cruiser speed was raised about one mile per hour. *Elda* is a notable coastwise yacht, 130 feet on the water line, 18 feet beam, drawing 4 feet 10 inches, and powered with two 16-cylinder Winton engines. Of Cox & Stevens design, she was built at the Defoe Works in Michigan, and her maiden passage to New York was via the St. Lawrence, with a visit en route to the Saguenay River.

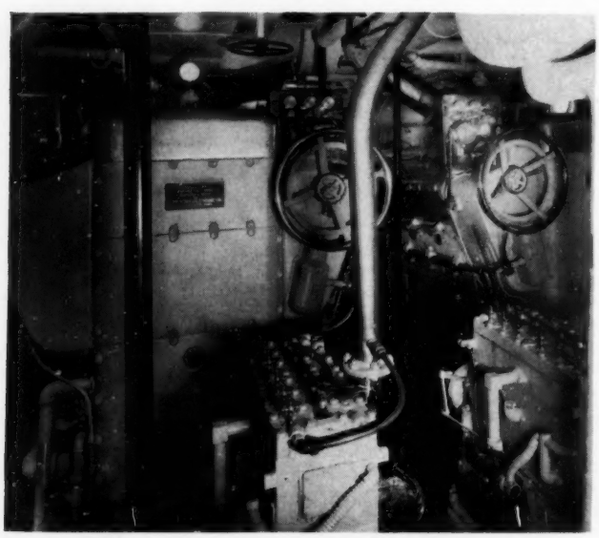
The long run of some 2300 miles from the Great Lakes to New York via the St. Lawrence proved a successful test for the Vee-type engines, which, turning at 775 revolutions, develop 650 horsepower each on a weight of 17,500 pounds. The lightening of this machinery represents considerable progress when contrasted with the 40,000-pound weight of each of the *Shadow K.'s* 500-horsepower engines in 1925. It helps to account for *Elda's* 17½-knot speed, equal to 20 statute miles an hour.

Normada, a 116-footer delivered last autumn to James Carstairs, of Philadelphia, is also good for 20 miles an hour. She is a Bowes design, with two Vee-type 12-cylinder Treiber motors of 450 horsepower each, and weight of 9000 pounds.



"Elda," a coastwise cruiser of Cox & Stevens design, has proved the reliability of Vee-type, light weight Diesel engines in extensive cruising

Both of these 20-mile-an-hour yachts have now been surpassed in speed not only by *Lady Nina* but also by George Codrington's *All Alone* which can maintain a speed of better than 20 miles an hour for long periods. She measures just under 80 feet by 14 feet 6 inches, and draws 4 feet. For power she has two 6-cylinder Winton engines of 300 horsepower each on a weight of 6500 pounds each. Following the normal Winton 8- by 10-inch design, these motors are special only in so far as



"Elda's" 20-mile speed is attained with two Winton Diesels which develop 650 h.p. on a weight of 17,500 pounds each

they have been lightened and speeded up to about 950 r.p.m. During the winter *All Alone* made the passage from Jacksonville to Miami over a course of about 340 miles in just about 17 hours, logging a sustained speed of 20 miles on this long stretch.

The Diesel-engined cruisers capable of 19 miles per hour or higher are raised in number to six by the addition of A. M. Dick's new 110-foot cruiser *Vixen*, which is of Consolidated design and build, powered with three Speedway Diesel motors of 300 horsepower each, and weight of 7600 pounds.

That, in sum, is the record of the best Diesel cruiser speeds to date. It is not a Gar Wood story, but it is replete with creditable achievement. The costliness of new production and the protraction of engine tests create a barrier to rapid development. The several types of Diesel motors for airships, for aeroplanes and for locomotives have contributed nothing, as yet, to developments in the marine domain. Progress has come, on the one hand, from steady and persistent development by an established builder of marine Diesel motors, and, on the other hand, from the bold and arduous efforts of a newcomer cramped by financial limitations.

In the meantime, the higher circles of power boat owners have become Diesel-minded and there is thus more encouragement to progress. Fuel economy and a reduced fire hazard are the potent attractions of the Diesel engine. They have elevated this type of machine to its present great favor for cruising yachts over many obstacles, and they are the lure of the Diesel express cruiser as well.

For economy over long distances, the Diesel motor is unchallengeable, but the gas engine is still supreme for high speed. Between these two poles the prevailing Diesel-mindedness seems sometimes to outweigh the fair merits of gas engines, and unquestionably there is a welcome awaiting the demonstration of Diesel speed boats. The preference for Diesel motors is now frequently determined by a state of mind, without any technical considerations. The Diesel engine is in vogue.

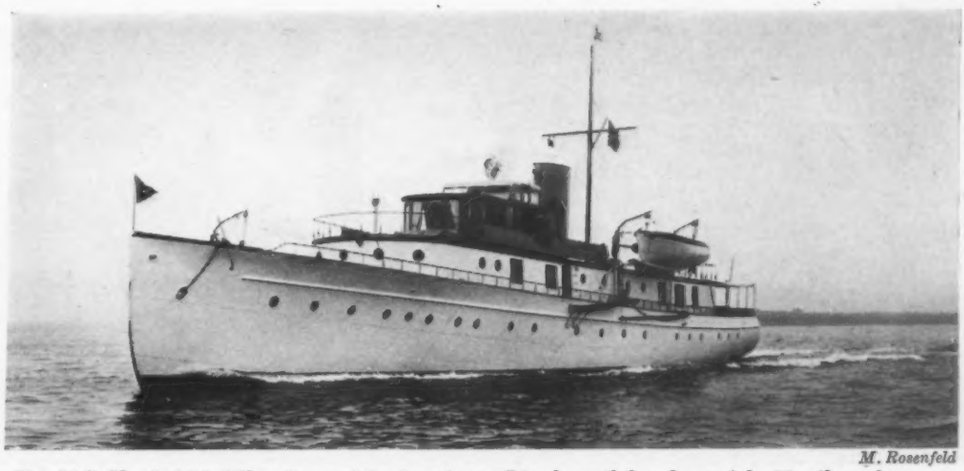
In this direction the greatest influence has been the trend towards larger and faster Diesel yachts. This year will see afloat more than a dozen large cruising yachts with a 16-knot speed, equal to 18½ miles an hour, and at least another three capable of 18 miles an hour.

Two of the largest ocean-going Diesel yachts have a speed of 19 miles an hour or more. Fastest is Ernest B. Dane's *Vanda*, 220 feet on the water line, designed by Gielow, and powered with two 1500-horsepower Bessemer engines. On trial she made 17.7 knots, equal to 20.4 miles per hour, and she is still the speediest of all the large yachts. Mrs. Boyce Thompson's *Alder*, 275 feet on the water line, similarly powered, also of Gielow design, and, like *Vanda*, built at the Bath Iron Works, made 16.6 knots on trial when she came out as *Savarona*. Her speed in land miles per hour is thus 19.2.

Arcadia and *Mizpah* (ex-*Savarona*) led the way to 16 knots in 1926, followed by *Vanda*, *Alder* (ex-*Savarona II*), and *Nourmahal*, in 1928. The first two were about 175 feet on the water line and had 1600 horsepower. The Astor yacht measured 260 feet on the water line and had 3200 horsepower. Next came *Colleen* for

Samuel A. Savage, only 140 feet l.w.l., but with 1200 horsepower.

In 1930 the list was extended by the triplets *Cambriona*, *Nakhoda* and *René*, owned respectively by W. O. Briggs, Fred J. Fisher and Alfred P. Sloan. These yachts were three feet short of 200 feet on the water line and made their speed with 2200 horsepower. This year's 16-knot yachts comprise W. K. Vanderbilt's *Alva*, of 260 feet l.w.l., with 4200 horsepower, Charles Stone's *Argosy*, of 178 feet l.w.l., with 2100 horsepower, Hugh Chisholm's new *Aras* which has made 16⅜ knots on the Rockland mile, equivalent to a little less than 19 miles per hour, and Ogden Mills' *Avalon*, of 162 feet l.w.l. and only 6 feet 6 inches draft, with 1200 horsepower. Of the same speed, also, is Harold Vanderbilt's *Vara* already referred to. A total of 14 yachts.



M. Rosenfeld

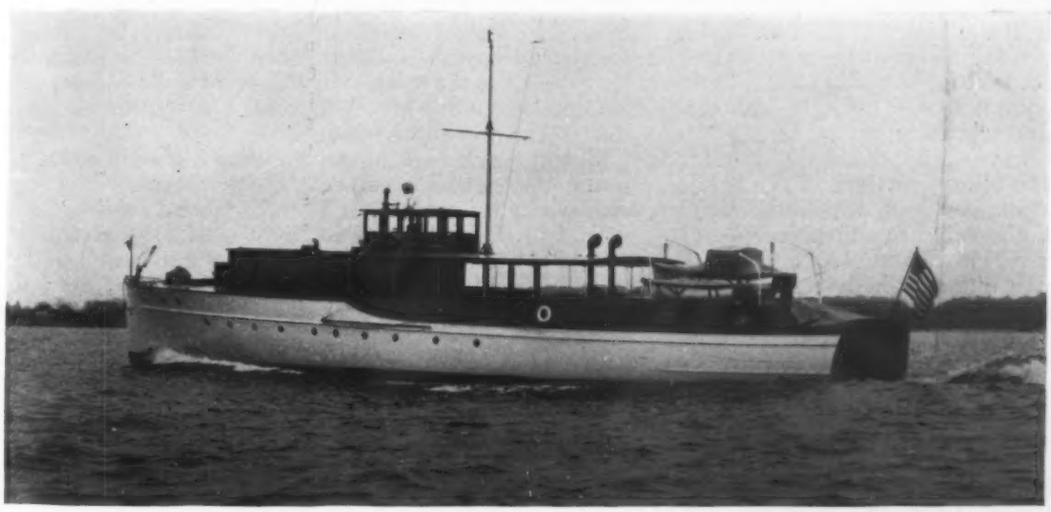
Harold S. Vanderbilt's "Vara," one of the three fastest Diesels until the advent of the 20-mile-an-hour yachts last autumn. She is from designs by Purdy and is powered with two Treiber Diesels

Most of these are of Cox & Stevens design, built at various yards and with Winton engines, the exceptions being *Alder* and *Vanda* — of Gielow design, with Bessemer motors — *Colleen*, which is by Dobson, and *Vara* which is of Purdy design, with Treiber motors. *Nourmahal*, *Alva* and *Avalon* have foreign engines.

Between 18 and 18½ miles per hour are included the Tams-designed *Avalanche* and *Thalia*, the latter of 153 feet l.w.l., and the former about 160 feet, both with 1200 horsepower and about a match in speed. The household cruising type yacht *Klahanee*, built by the Consolidated Shipbuilding Corporation, also earns a place by a timed trial at 18.11 miles per hour.

With this background the pretensions of the Diesel craft to speed have become real. Among the large yachts this speed has developed with the increasing length of the vessels. Among the cruisers, on the other hand, the speed development has been more noteworthy and creditable because it is in inverse proportion to length. Speed among the cruisers has been gained by improved hull design and lighter machinery. Along those lines it must continue in order to place the Diesel motor in the fast commuter type of boat.

The weights per horsepower have been reduced to 27 pounds in *Elda;* to 25 in *Vixen;* to 22 in *All Alone;* and to 18 in *Lady Nina.* They have all been attained in boats that have appeared since last summer and they present, therefore, an immediate development of the faster Diesel cruisers. Only the first advantage has been taken of them. Fuller advantage still remains to be reaped when these new accomplishments become more widely known.



"Vixen," a new 110-foot cruiser owned by A. M. Dick, and of Consolidated design and build, takes rank in the fleet of 19-mile-an-hour Diesels

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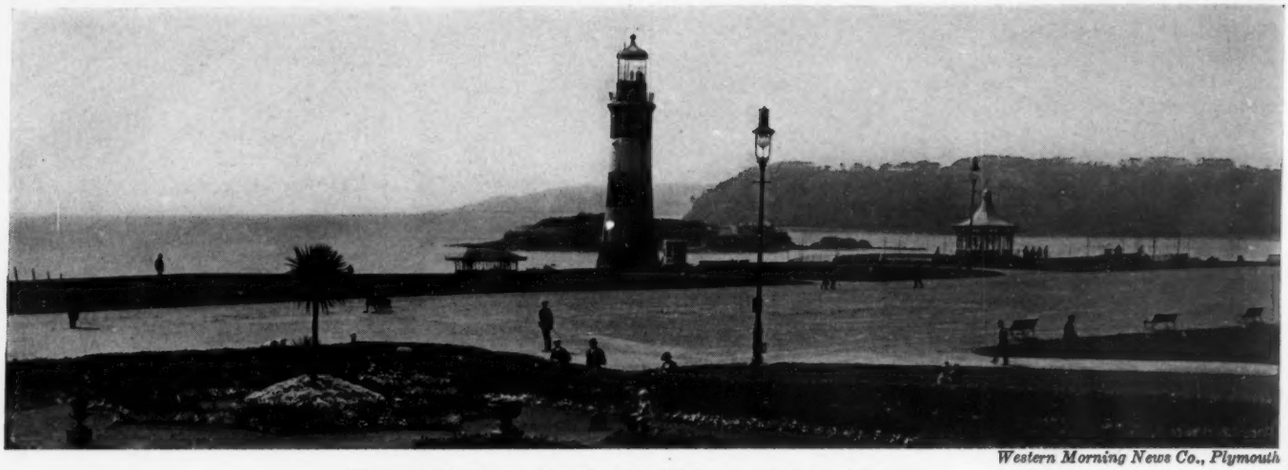
"Vixen's" three Speedway Diesels of 300 h.p. each represent a weight of 25 pounds per horsepower



Western Morning News Co., Plymouth

Plymouth Sound, at the end of the 2950-mile grind from Newport

From Soundings to Plymouth

A Few Hints for the Transatlantic Racers

By L. LUARD

THE distance from Bishop Rock Lighthouse — the probable landfall of the Transatlantic racers, given good conditions on this side — to Plymouth Breakwater is 95 miles, if the Lizard be left close on the port hand; and here, in the chops of the Channel, the race may well be won or lost, for at springs the tides run strong, especially off prominent headlands, and often the weather is fickle and treacherous.

Deep water gives way abruptly to the hundred-fathom mark about 180 miles westward of the Scillies, and this ledge — the plateau upon which the British Isles rest — curves in a steady arc which decreases its distance from the Scillies to about 120 miles in the southwest. There is little difficulty in determining when this point has been reached, for the color of the water changes from the dark blue of deep sapphire to a blue flecked with green, and soon after the green tint predominates. Moreover, in fine weather, swirls, eddies, and ripples mark this demarcation line, and in bad weather the sea changes its character, the long rollers of the Atlantic becoming irregular, short, and confused.

It is here in soundings that tidal streams must be taken into consideration. Until the tidal wave has reached this point there is little horizontal flow in the water except for surface drift — always an important factor; but once the edge of the plateau is struck tidal streams are generated. A casual glance at the sailing directions leaves an impression that the streams are complicated to the westward of, and 'round, the Scillies; but in reality they are simple enough — being rotary, and setting, as a general rule, to the northward and eastward while the water is falling at Dover (the standard datum port for all our tides) — and to the southward and westward while it is rising there, the maximum rate at springs being about a knot and a half. However, the northerly set is stronger as a whole than the southerly one, and this should be borne in mind, especially with southwesterly winds, as surface drift then provides an added impetus. Furthermore, after heavy gales from this quarter, and even from the westward, the Rennell Current may be felt. This is an outset from the Bay of Biscay, which extends from about 70 miles, west-southwest of the Scillies to as far as 150 miles west of Cape Clear, on the Irish Coast, flowing west-northwest; but it rarely occurs in spells of fine weather. The general inference that can be drawn, then, is that ships will, on the whole, be set to the northward of their course, the amount depending greatly upon the strength and duration of the prevailing wind.

Bishop Rock Lighthouse, standing high and solitary, marks the southwest corner of the Scillies, and its group flashing light is visible for 18 miles from a height of eye of 15 feet. Round Island red light marks the northwest corner of these islands; but unless the ship is well to the northward of her position, and, therefore, forced to make the passage between the Scillies and the shore, over the legendary land of Lyonnesse, no notice need be taken of it. However, if this contingency arises, the main thing to remember is to give the Seven Stones a clear berth — the lightship lies about two miles to the northeastward of the clustered rocks it marks — before shaping a course to clear the Lizard. Here time can be saved, if the tide is favorable, by leaving the lightship well on the port hand and passing close to the Scillies; but this passage should be avoided in fog or in really heavy weather unless local conditions are well known; and the Seven Stones should be left to starboard instead.

At dark, after Bishop Light has been passed, Peninnis Head Light will soon swing abeam, the Wolf Rock Light, situated eight miles southwest of Land's End, will appear fine on the port bow, and soon after the loom of the Lizard should be seen. By day the tall lighthouse on the Wolf can hardly be mistaken for anything else, as the Longships Lighthouse stands hard against Land's End, only a mile from the shore. The coast here is high, cragged, commanding, and precipitous, and sweeps on its southern side into a steady curve that forms Mounts Bay, with the rugged loftiness of St. Michael's Mount — "both land and island twice a day" — in the center.

The Lizard, easily recognized by its two white towers, forms the southern point of this curve, and the coast

then takes another northern sweep into Falmouth Bay before running east, sharpening into the bluff bold prominence of Dodman Head, branching north and east once more into another sector, and culminating in the escarpment that is Rame Head, off Plymouth. No dangers extend far offshore along the stretch from Land's End to Rame Head; but a large number of rocks exist close to the land, and if forced to beat and enter any of the bays the ship's position should be accurately kept. The Lizard, and the coast in its vicinity, has been the last resting place of many fine ships; and the Manacle Rocks, marked by an inadequate bell buoy with a weak flashing light, are sateless in their greed.

When the rotary streams around the Scillies have been left astern, the true east and west stream of the Channel will be met, and it is well to remember that there is always a heavy indraft into the bays. There is no chance of cheating a foul stream off the Lizard, for the Stag Rocks, lying half-a-mile offshore, thwart really close coastal tactics. Here the streams reach a maximum rate of slightly over three knots at springs and of two knots at neaps, and are of nearly equal duration on flood and ebb, running west from three and a half hours before high water at Dover to one and a half hours afterwards, and east from two hours after high water at Dover until four hours before the following high water there.

In heavy weather a bad race exists south of the Stag Rocks and extends sometimes as far as three miles offshore. Five miles south of the Lizard, the stream is fully a knot less, and, therefore, it will probably not pay to keep close in unless the weather is good and the tide is fair. Local magnetic attraction is said to exist amongst the rocks in this vicinity, and though many deride the supposition, it helps to account for the disasters that have occurred in these waters.

Once past the Lizard, a straight course can be shaped for Rame Head. At night St. Anthony's Light, off Falmouth, will be seen, and the Eddystone Lighthouse, situated ten miles southwest one-half south of the long breakwater that runs athwart Plymouth Sound, forms an excellent guide until the light on the western arm is opened. The streams between the Lizard and Rame Head are a good deal weaker, and unless the wind is foul, and sheets have to be pinned home, it will not pay to diverge from the straight course; but directly the Sound is approached they strengthen again. Little can be done to cheat the ebb here, except to stand in as close as possible to the western shore, remembering that the Draystone Buoy can safely be left on the starboard hand — if the ship be kept halfway between it and the shore, and that Drake's Island should be given a clear berth, owing to shallow soundings. With the flood underfoot, the center of the channel should be worked, as full benefit is then obtained.

If the wind is westerly, it will veer as the ship works up the harbor, and even though a course can be laid with checked sheets it usually pays to resist temptation and to keep as far to windward as possible.

Mention of one idiosyncrasy of the harbor wind leads, naturally enough, to the subject of weather as a whole along this part of the coast. The prevailing winds are westerly and southwesterly. In August — especially during the Fastnet Race — they delight in attaining gale force, either from this quarter or from the northwest. The depressions that cause these winds usually pass well north of the English Channel; and the wind, therefore, starts at south-southeast or south, with a dropping glass, freshens fast, veers to southwest and blows hard, often obliterating visibility with driving curtains of mist and rain. From now onwards the barometer and the sky must be carefully watched, for often, with practically no warning, the wind whips into the northwest and blows harder than before. Only with the help of experience can one gauge the actual moment of this shift. Sometimes a sudden rise in the glass is the signal; at other times a lull or a break in the gray murk overhead is the precursor of change; again, a heavy shower

(Continued on page 109)

Longships Light at Land's End marks the extremity of the rocky southwest coast

The race may be won or lost in the Channel chops off the Lizard

M. Rosenfeld Photos

One hundred and eighteen boats started the 132-mile marathon from Albany to New York

About Those Motor Boats

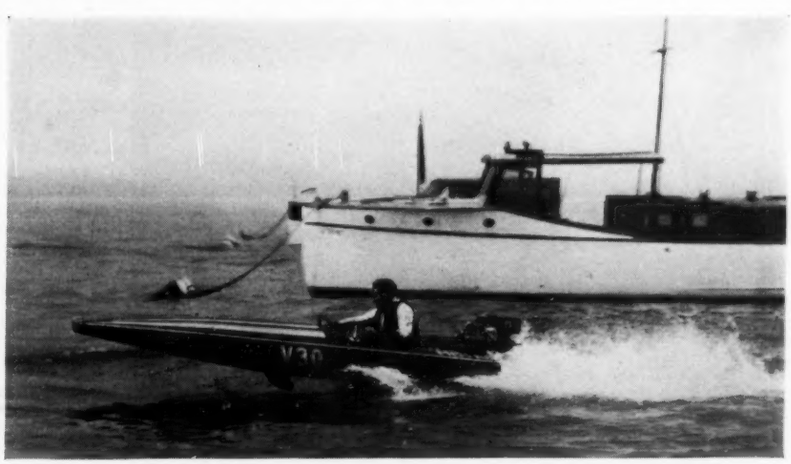
The Albany to New York Race

By GEORGE W. SUTTON, JR.

NO DOUBT there is a special providence exercising benign guardianship over several groups of human beings — including the motor boat crowd. The fourth annual 132¼-mile small boat race from Albany to New York, before breakfast on Saturday, May 9th, is indisputable evidence of this fact.

Friday and Friday night were rainy, squally, cold, and miserable. Then a deep fog rolled in from Rum Row for an over-night stay. The Army airplane from which Captain Ronald Appel and Lieutenant David Grimes intended to broadcast the progress of the race to the microphones and loud speakers arranged at the Colonial Yacht Club finish line, at 152nd Street and Riverside Drive, was unable to leave the ground. The Standard Oil autogiro in which Captain J. S. Dexter planned to hover protectingly over the galloping outboards and inboards and report their troubles to the Coast Guard patrol boats was also confined to its nest. A frigid, wet Northeaster, two days old, promised a bleak week-end and utmost discomfort for the hundred or more hardy racing youngsters of all ages and for the hard-working officials. Then —

Came the dawn! The Easterly had retired from the game, the river was smooth in its upper stretches near the Albany Yacht Club, and all that remained was the fog which caused several of the drivers to lose their bearings and pull a Riegal by running in the opposite direction. Along about nine o'clock the sun forced a few holes in the fog, and through one of these holes the Army men pushed their airplanes and picked up the scudding fleet at Poughkeepsie. From then on they kept up a running description of the race, as they glimpsed it through cloud rifts. What if they did report Marshall Eldredge leading at Tarrytown? They did not know that, completely enveloped in a low-lying cloud, a new champion was dashing on ahead of Eldredge to be



The winner, Wade Woodworth, drove "Miss Northwestern" at a 41.8 m.p.h. average. She was powered with an Evinrude

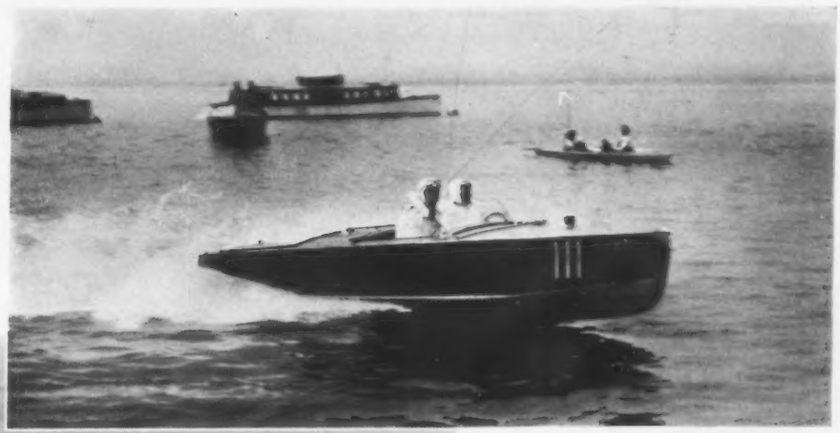
crowned with the laurels that go to the winner of this longest and hardest of all American outboard contests.

The race was a "humdinger." Nobody, apparently, will ever know exactly how many boats started, but the general guess is 112. Anyhow, 117 entries came in, some of them from such points as St. Louis, Chicago, Detroit, Toronto, Ravine, Ill., Evanston, Ill., Indianapolis, and other distant places. This was a smaller number than last year's 136 starters but, then, a greater proportion finished — 50, against 53 last year — so progress of a substantial sort was made. In the 1929 race there were 140 entries, 130 starters, and 54 finishers. In the inaugural event in 1928, there were 123 entries, of which 67 faced Commodore William M. Eldridge's starting cannon, and 34 found their way through the rain to Dyckman Street, the finish line that year.

To dispute the statements that Class C is overshadowing all others, the entries lined up as in the tabulation below. And the tabulation tells a significant story. Notice what happened to the Class DEF professionals. Five-sixths of them dropped by the wayside. An analyst could burn considerable midnight oil over these results, with interesting conclusions.

what direction lay the great metropolis towards which he was supposed to be racing.

A waiting crowd of thousands stood around the finish line, trying to peer up river through the soupy mist. Presently a sleek, striped outboard, with big Class F Evinrude engine roaring, and above it a flaming pennant of wild red hair, burst a hole in the fog, its driver steering with one hand and bailing furiously with the other because the sea-cock had fallen out and the Hudson River was pouring into the craft. On the side of the boat was her name, *Miss Northwestern*, and the cabalistic symbol *V 30*. Yacht whistles blew, the crowd cheered and officials went scurrying through the entry list for *V 30*. Presently the radio announcer found it and over the crowd went his voice proclaiming that "Red" Woodworth, famous guard on the Northwestern University football team, an amateur, entirely unknown in eastern boat races and only moderately successful in a few previous mid-western events, had won the race in the record time of 3 hours, 10 minutes flat, at 41.8 miles an hour. This was 15 minutes, 3 seconds, and 3.1 miles an hour faster than the record set up last year by J. E. Wilkinson, of Boston.



"Miss Aldine," powered with a Lycoming engine and driven by Mrs. Mildred Hickey, was winner in Class A for runabouts

\+ + +

J. Walter Peterssen drove his "Century Thunderbolt" to win in the 125-cubic-inch class

	Started	Finished
Outboards, Class A Division, II, Professional...	1	0
" " B " I, Amateur.....	5	4
" " B " II, Professional...	4	3
" " C " I, Amateur.....	17	5
" " C " II, Professional...	14	7
" " DEF " I, Amateur.....	22	13
" " DEF " II, Professional...	36	6
TOTAL OUTBOARDS.....	99	38
Inboard Runabouts Class A — under 50 h.p. ...	14	10
125 Cubic Inch Hydroplanes.....	5	2
TOTAL INBOARDS.....	19	12

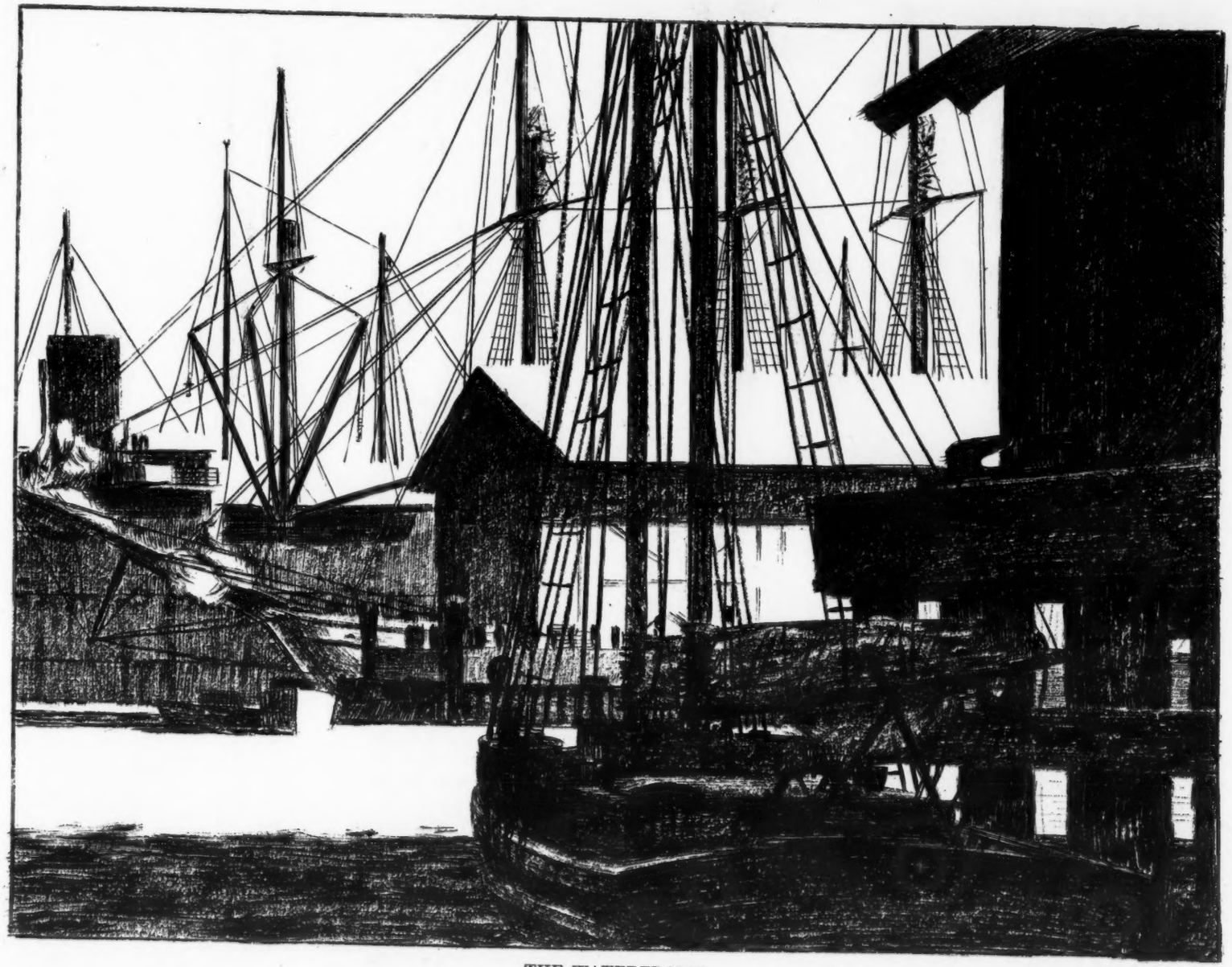
Regardless of the weather, all the official soothsayers of this hectic sport expected to see a new record made. And they soothsaid accurately, one of them, in fact, guessing within 55 seconds of the new mark.

Out of the fog, with red hair flaming through the murk, came the new champion, Wade Woodworth, at almost 42 miles an hour, plunging on to victory. Three times he had to stop in the long, dark flight, twice for refueling, once to ask a riverside farmer near Nyack in

In 1928 Earle Widegren established the first mark of 4 hours 27 minutes, 30 seconds for an average speed of 29.8 miles an hour, and in 1929 Jake Dunnell, of Boston, galloped along at 36.63 miles in 3 hours, 36 minutes, 40 seconds.

The crowd had scant time to mull over these facts. Exactly a minute later Marshall Eldredge, a veteran Boston "pro," driving a Ludington boat with a Class F Johnson motor, came tearing over the line and the big parade of finishers was on. Five minutes elapsed, then came young Walter Widegren, of Glen Cove, N. Y., one of our national record holders and brother of the late Earle Widegren, winner of the first Albany marathon in 1928.

(Continued on page 100)



THE WATERFRONT

From a dry point by A. R. Hillier

A Thousand Miles in an Outboard Cruiser

From Lake Winnebago to Chicago, by Way of the Mississippi

By T. L. ESCHWEILER

BUYING a cruiser was one of the innumerable things we had always been sure we could not afford to do, and it was only by chance that we learned of the possibilities which an 18-foot boat would put at our command. This little outboard Sea Sled was a real cruiser, and one within our very limited means. We were delighted with the vacation vistas that it opened up. Why, we could take a tent and spend several days camping in one place if we tired of moving; it would float us down water highways free from dust and traffic; we might play the part of a modern Huck Finn (a desire long incubating) and cruise down the Mississippi. And when we were through cruising our boat would be ideal for use on an inland lake. It was not long before we had convinced ourselves that the little boat was a necessity rather than a luxury.

Forced ashore in a storm

To power our heavy cruiser, our choice was an Elto Quad. The electric starter made it possible to bring all the controls forward to the steering wheel, thus controlling her just like a fully equipped inboard installation.

With the Mississippi as our main objective, *O'Shaw's* first cruise was to carry a crew consisting of my wife, my brother, and me. We planned to start at Fond du Lac, go up Lake Winnebago to Oshkosh, and there enter the Fox River leading to the government canal at Portage, which connects this river with the Wisconsin. The latter runs into the Mississippi River at Prairie du Chien.

The United States Engineers at Milwaukee furnished us with accurate charts of the channels from Fond du Lac to Portage. From there on all they could furnish were topographical surveys and discouragement. They finally conceded that, although the government had done no work to keep a channel open in these rivers for twelve years, if we left early in June before the weeds grow tall in the Fox, and there was still high water over the sand bars in the Wisconsin, we might get through, provided we were willing to work hard.

This admission was all that we needed. We would start early in June so that we would surely have good water running into the Mississippi. But, as with many a good plan, one thing after another interfered, each delaying our start a little more, and it was not until the afternoon of July 10th that we backed the trailer carrying *O'Shaw* into the water at Fond du Lac. The only launching place for a trailer was a very steep bank about ten feet high. Loaded as she was with her engine and duffle, the bank proved to be too steep and she ducked her stern under, taking in a couple of barrels of water before she floated. A strong head wind on Winnebago showed the mistake of stowing too much duffle forward.

The second day our little craft was much better ballasted, and rode the waves of Lake Butte des Morts with the spirit of an ocean liner. Both the cabin and the cover for the motor early proved their value as a protection from spray as well as from the heat and glare.

As we slid along the peaceful, winding Fox River it was hard to understand how anyone could think of discouraging cruising on these waters. The locks at Eureka, Berlin, White River and Princeton were all exceptionally neat and well cared for. It was our first experience in locks, and we were impressed by the prompt and courteous attention given a boat wishing to pass through.

Our first experience with weeds came the afternoon of the third day as we entered Packaway Lake. A few hundred yards in this lake and we heaved our anchor for the first time to keep her from drifting with the strong wind while we cut the weeds off the propeller. We repeated this process frequently until we finally conquered the lake and camped at the Grand River Lock. It was here that we were told of a weedless propeller, an invention of these parts and unknown to us, but an accessory that we shall carry on all future trips, if it can be obtained for an outboard motor.

The weeds in Packaway were but a forerunner of those we were to encounter in Buffalo Lake. The next day we made but eight or ten miles. There was a light following breeze until noon, so in place of the motor we rigged up a squaresail with the aid of a pole, a paddle, and a canvas bed roll, and with it we moved quite steadily but slowly forward. But about three miles from the end of the lake the breeze died away and we found ourselves paddling over a floating marsh of weeds. Our camp at Endeavor that night was certainly a welcome one.

Going aground on four sand bars and holding fast on one dead head in the first hour of travel on the Wisconsin, quickly showed us how difficult it was going to be to read the surface of the water to find the channel. We no longer had government charts to follow, nor any markings in the river itself. The back water of the Prairie du Sac dam widened the river 25 miles above, with tree stumps appearing in the water near the shores as

monuments to picturesque woods of earlier days. The stumps continued to increase in number as we progressed until finally the river channel looked like a cleared roadway in the Argonne forest, with very few places where one could run to shore with any safety. In the midst of this, just after rounding a high bluff at the leeward end of a ten-mile wind-swept lake, the waves increased in size until they broke high over the bow, threatening to swamp our heavily-laden craft. The cabin could not be closed, due to the necessity of a lookout standing next to the helmsman.

"O'Shaw's" eighteen feet proved ample for cruising

The chances of weathering the storm were rapidly decreasing, as she continued to take in water with almost every second wave. But *O'Shaw's* luck was with her again, for we sighted the first opening in the stump forest large enough to chance a landing. The rest of the day was spent bailing eight inches of water out of the boat, drying the water-logged duffle, and mooring the boat safely behind a breakwater of logs.

At four the next morning the lake was as calm as a mill pond, and the run to the Prairie du Sac Lock was gorgeous. Here we were dropped 32 feet, the largest lock we had passed through.

We spent the week-end at Muscoda camping with friends. The power plant at Prairie du Sac furnishes the current for Milwaukee factories, so it does not run on Sundays. This, we learned later, affects the river level considerably by Monday. Consequently, much to our surprise, the boat was high and dry when we were ready to leave Monday morning, but some kindly neighbors of our camp helped us lift the boat into the water again. It was not until our duffle was aboard that we noticed *O'Shaw* was filling with water; the rocks she had settled on had broken four holes in the bottom. A more crest-fallen crew it would be hard to find. Our trip was over; we were sure that repairs could not be made in time to continue. However, we located an excellent boatbuilder within a stone's throw of the scene of the accident, and a day's work in our improvised dry dock, with the assistance of the old boatbuilder's son, saw *O'Shaw* as good as new once more.

Two days later, early in the morning, we saw the Iowa bluffs, and our goal was reached. With no fear of sand bars or dead heads we ran into Prairie du Chien and tied up to the dock in front of the old Astor fur trading post, now a repair shop for outboard motors. The cruising was so simple and delightful that we were tempted to continue our trip by water to a point nearer home rather than abandon the boat on the Mississippi. It was here that we learned of the Illinois Mississippi Canal. We could go through to Chicago without running to the mouth of the Illinois River, near St. Louis, a run our limited time would not permit. The remaining days of our vacation would probably give us time to reach our new objective, and thus greatly reduce *O'Shaw's* trip by trailer.

After conquering the weeds of the Fox and crossing the sand bars of the Wisconsin, cruising down a deep and well marked river was rather simple. If it had not been for the beautiful shores, the peaceful, clear, deep channel, with no trying moments, the Mississippi would have seemed monotonous indeed.

+ + +

Navigating the Illinois Mississippi Canal was like shooting fish in a bath tub

After two days of this interesting cruising we entered the Illinois Mississippi Canal and passed through the first of the 32 locks in its 65-mile length. A hundred and four degrees in the shade, plus the warm water of the canal proved too much for the motor at midday. Our plans were then necessarily changed to night running. The running was not difficult—the navigating was like shooting fish in a bath tub.

After spending the last night at Lockport where we were raised 48 feet in the huge lock, we sighted our second goal by noon of the next day, and shortly afterwards we moored at the Wrigley Building dock, where we unloaded our duffle, as we were going home by train. But first we ran *O'Shaw* up the North River to Wilmette, where she awaited her trailer. She was a veteran now, with a thousand miles of cruising to her credit.

The Transatlantic Race Fleet

+ + +

Nine or More Yachts Scheduled for the Start from Newport July Fourth

+ + +

Julian Carpenter

"Landfall," Paul Hammond's 71-foot ketch, arrives in Boston from Germany

A MONTH before the start of the Transatlantic Race from Newport to Plymouth on July 4th, the nine sure starters are well on their way through the hard grind of preparation essential for a long, driving contest across the Western Ocean. Owners are busy figuring on extra seagoing equipment of all kinds, and preparing extensive food lists. Navigators are studying books and charts, figuring out great circle courses, and conferring with anyone and everyone they can find who has any "dope" on winds and currents likely to be encountered on the 2950-mile struggle. Crews are making preparations for their vacations, and gathering together a full kit of seagoing clothes.

The boats themselves, new and old, are overboard, rigged, and out on tuning-up spins, which will be continued throughout June. Sails will be re-cut, and new ones ordered, and everything possible done to ensure a fast, safe trip.

Five new boats and four old ones comprise the fleet at this writing. In addition, there is a good chance that the British cutter *Maitenes II*, owned by W. B. Luard, will be shipped over in time to start. *Maitenes II* is a veteran of two Fastnet Races, about 50 feet long over all. She took second prize to *Jolie Brise* in last year's premier long-distance race in foreign waters, and is conceded to be a dangerous craft. The tentative German entry, the 55-foot ketch mentioned last month, has not yet materialized.

The two duplicate schooners, *Seven Seas* and *Amberjack II*, owned respectively by F. S. Dellenbaugh, Jr., and P. D. Rust, Jr., had successful launchings from Lawley's yard, as did the Paine-designed cutter *Highland Light*, owned by Dudley Wolfe, a veteran ocean racing man. Boston yachtsmen are pinning their faith on these three craft to make the rest of the fleet know they are in a race.

The 71-foot ketch *Landfall*, owned by Paul Hammond, and built abroad from designs of L. Francis Herreshoff, arrived by steamer about May 10th and was soon in the water ready for her spars and rigging to be shipped. From available photographs, she is a rugged, handsome cruising craft with rather short ends, good freeboard and nice sheer. Her transom stern with outboard rudder are features which will distinguish her from the other entrants.

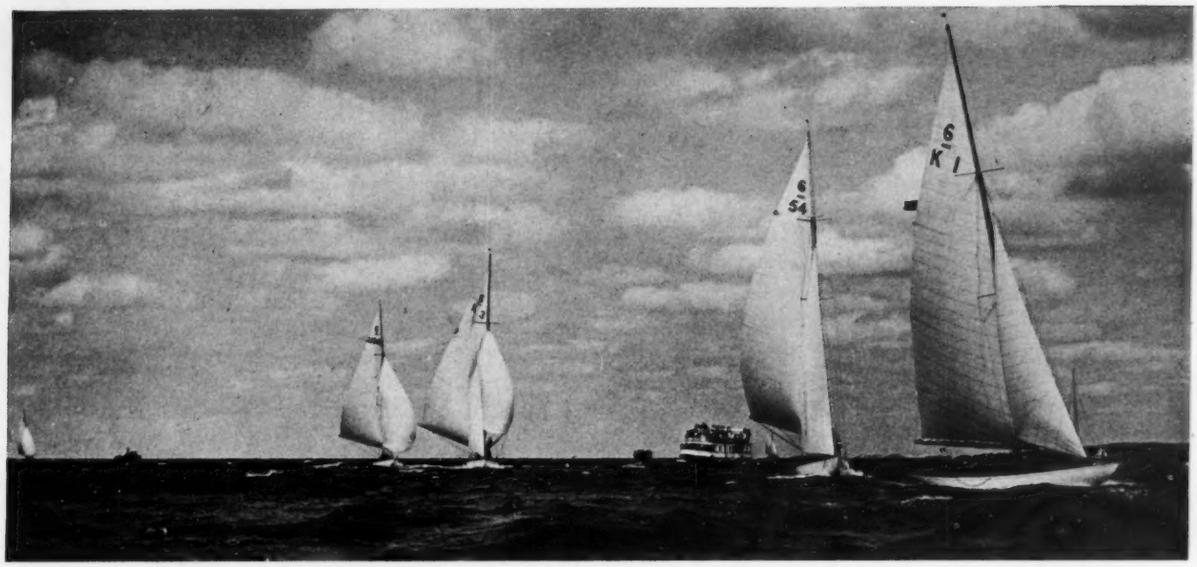
Up at Hodgdon's yard in East Boothbay, William McMillan's Alden-designed 59-foot schooner *Water Gypsy* is rigged and outfitted, and will be tuning up the latter part of May. She is said to be a development of the schooner *Teragram*, with a bit less beam and a little greater depth of hull.

The yawl *Dorade*, which will be sailed by her owner-designer, Olin J. Stephens, has had her bowsprit removed and mast shortened, with a resultant decrease of 200 square feet of sail area. Her designer believes that the lower rating he will receive will more than offset any

(Continued on page 90)

"Water Gypsy," William McMillan's 59-foot schooner

"Highland Light" and "Amberjack II" just after launching at Lawley's



"Viking" leading "BobKat" at the end of the first round on the last day of the series in Bermuda

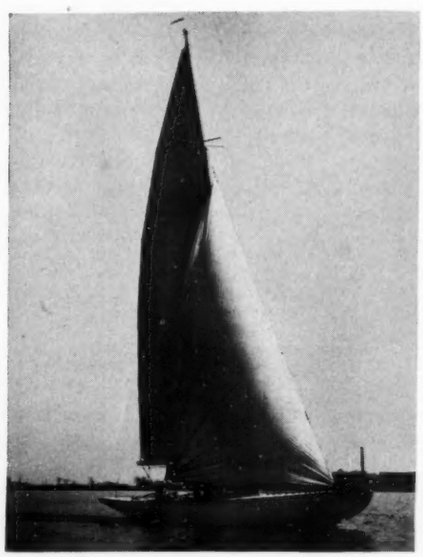
Bermuda "Sixes" Trim American Boats

AFTER the annual meeting between the teams of the Bermuda one-design boats and the Sound Interclub Class, sailed during April, in Bermuda waters, in which the Long Island Sound sailors were victorious in the first three races of a five-race match, a series of four races was sailed in Six-Metre yachts, in which the tables were reversed, and the Bermuda skippers proved that their "Sixes" are exceedingly fast boats and extremely hard to beat. In fact, the combination of Eldon Trimingham and the *Achilles* proved too hard a nut to crack, and the Bermuda ace took the Royal Bermuda Yacht Club Cup for the high point boat of the series by virtue of winning three of the four races. *BobKat*, sailed by her owner, "Bob" Meyer, took the only other race, and but for a disqualification in the last event would have run *Achilles* a close second in the point score.

While the Interclub-Bermuda one-design affair was a team match with four boats to a side, the Six-Metre series was an individual affair, the trophy to go to the winner on points. The Bermuda "Sixes" are all one-design craft, from plans by Bj. Aas, of Norway. They were new last year, and sailed their first series against the American boats in 1930, when they gave indications of great speed. The three American "Sixes" consisted of two new boats, the *BobKat* and the *Lucie*, and *Aphrodite*, built last year. *BobKat II* was designed by Sparkman & Stephens, and is owned by Robert Meyer; *Lucie*, owned by Briggs S. Cunningham, is from designs by Clinton H. Crane; *Aphrodite*, owned by S. W. Johnston, was designed by C. Sherman Hoyt.

The score by points for the series was as follows:

Boat	*Skipper*	*Points*
Achilles	E. H. Trimingham	21
Viking	K. F. Trimingham	16
Lucie	Briggs S. Cunningham	14
BobKat	Robert Meyer	14
Aphrodite	S. W. Johnston	7
Sea Venture	Lloyd P. Jones	6



"BobKat" is a new "Six" from the board of Sparkman & Stephens, and was launched shortly before the series

The first race was sailed on April 14th. It was a windward and leeward affair and sailed in a fluky breeze of eight to ten miles' strength. It proved to be more or less of a family matter between the two Trimingham, for Eldon had but little difficulty in winning with *Achilles*, while Kenneth landed *Viking* in second place. *BobKat* was third. From this race it was apparent that the Bermuda boats were somewhat the better in light conditions. *BobKat* looked good, but *Lucie* had, apparently, not found herself, as she was not going well.

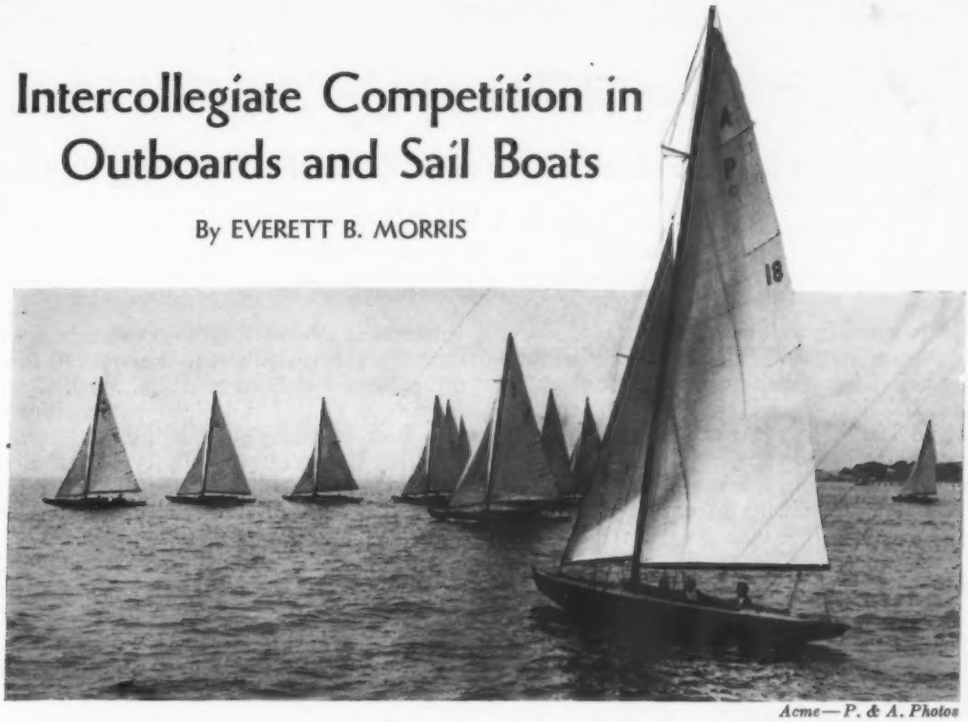
On the following day the second race was sailed, over a triangular course and in a somewhat stronger wind, of 13 to 15 miles strength, and with the fresher breeze the American boats did better. At the finish there was not much to choose between the first four boats, and although *Achilles* again won, *Lucie* showed much improved form and finished a close second, *BobKat*, *Viking* and *Sea Venture* pushing the leaders all the way, with *Aphrodite* a poor last.

Throughout the series the wind gradually freshened, and on the third day of racing, April 16th, it had breezed up to 15 to 18 miles. The course was again windward and leeward, and all the boats started with Genoa jibs.

(Continued on page 100)

Intercollegiate Competition in Outboards and Sail Boats

By EVERETT B. MORRIS



Acme—P. & A. Photos

Harvard, Yale, Princeton, Cornell, Williams and Dartmouth crews crossing the line in Atlantic Coast One-Designs

BOATING — motor and sail — is rapidly assuming a position of importance among the spring time athletic diversions of American colleges. It appeals to the spirit of adventure and the love of combat with the elements which are latent in most of us. Therein, perhaps, lies the chief reason for its success and the explanation of the fact that thirty oil-soaked, begrimmed undergraduates of thirteen Eastern colleges and universities participated in the first Eastern Intercollegiate Outboard Association regatta at Lake Skaneateles, N. Y., last May and less than a month later some three dozen students of six of our oldest institutions of higher learning engaged, at Southport, Conn., in a two-day struggle for the third intercollegiate sailing championship. Only the fact that sponsors of the latter regatta could not borrow enough boats to accommodate their crews prevented the acceptance of entries from four other schools.

Thus has the sport grown since 1928, when Briggs Cunningham, ace of the American team which overwhelmed the British six-metres last summer in their biennial contest for the British-American Cup, rallied sailing enthusiasts from Harvard, Princeton and Yale at the Pequot Yacht Club, at Southport, and, with the aid of Fred T. Bedford, conducted the first intercollegiate yachting regatta.

Princeton won the H-Y-P Trophy put up for competition that year by George May, and in 1929 Cornell joined Yale and Harvard in challenging for it. The 1929 races were held at Oyster Bay from the Seawanhaka Corinthian Yacht Club, with C. Sherman Hoyt in charge. But when Mr. Hoyt fired the starting gun the Crimson sailormen had not appeared. The matter never has been thoroughly explained.

Yale relieved Princeton of the championship burden that season and at once laid plans for a bigger and better regatta in 1930, which, despite the Harvard disaster, was again scheduled for Seawanhaka. A conflict in dates with special races for the America's Cup candidates, however, required a shift in scene to Southport, across the Sound. One of the Williams skippers, uninformed of the change, made his way to Seawanhaka early on the morning of the date of the first race only to learn that his shipmates and rivals were somewhere on the Connecticut shore. He arrived at Pequot late in the afternoon, so worn and shaken that he could scarcely hold a tiller or man the jib sheet. Consequently, his racing was adversely affected and the young man never did get a boat home above tenth position.

Williams, Dartmouth, Massachusetts Institute of Technology, Columbia, New York University, and Manhattan College asked to be allowed to join Cornell,

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Yale, Princeton and Dartmouth rounding the mark in the Sound, off Southport, Conn.

The Hold-Up

When The Seamen's Union was in the Saddle and the Goose Hung High

By A. J. VILLIERS

Author of "Falmouth for Orders," "By Way of Cape Horn," "Vanished Fleets," etc.

"YEZ'LL always know 'ow to tell a reel sailor from a steamboat's deckhand if yez jest remember this trick. Give 'im a biscuit an' let 'im 'old it in 'is 'and. If 'e jest picks it up an' kinder natural like jest starts knockin' it on sumpin' — 'is 'ead, like as not, seein' that's often the toughest thing around — to scare the weevils out, well, 'e's a reel saltwater sailing-ship man. An' if 'e picks it up an' eats it without no such act, well, dawggoned if 'e aint ever seen a reel ship in 'is life."

That was the sailmaker's philosophy. There is something to be said for it, too. In the few Limejuice ships in which I sailed, I noticed particularly that all the older hands never cleaned their plates. In the four-masted bark *Bellands*, of Hull, we made a passage once of 151 days from Melbourne up to St. Nazaire, and the old chaps in the fo'c's'le never washed their dishes once. Wash their dishes? Hell, no! They explained that so long as you left a smell of something from the last meal still on the plate, well, you were sure of at least a lick or two for the next.

And if you washed your plate that would be gone.

That, of course, dated back from the old days when sailors were given no evening meal. They had to save enough from their scant breakfasts and their meager dinners to quiet their stomachs for the night. . . . I never could understand, when first I went to sea, why sailing-ships were always so damnably hungry. If any of them ever set out on a five-month voyage, she'd take food for four. If she was going on a four-month voyage, she'd have food for three. And if she was just setting out on a few days' tow, she'd take no food at all. The smaller the ships and the shorter the voyage, the hungrier they were. The smallest ship I was ever in was a little Australian schooner called the *Hawk*, trading between Melbourne and Tasmania. She was about 100 tons, carried four men, and had been good-looking once. We used to fill her hold with superphosphates in bags — deucedly heavy stuff — and then pile a cargo of benzine in cases on the deck. When all the superphosphates and the benzine were aboard, we used to lash the little portable galley on top of the lot. There was an open fire-pot in it, and the sea provisions consisted mainly of a barracouta line trailing over the stern.

Bass Straits was a good place for barracouta and generally we had at least one meal a day. . . . Now and again such schooners used to be lost with all hands. I guess a red-hot cinder must have dropped out of the fire-pot on to the benzine.

I did not sail in the *Hawk* very long.

The only square-rigger where we ever had enough to eat was in the little bark *James Craig*, where the Old Man got the sack first port we came to. . . .

And yet, hungry and all, we always were a pretty contented lot in sail. It was different when I went into steam. I was only in three steamers — an Australian coasting collier, a cargo steamer of the now defunct Australian Government line, and a Norwegian whaler. In the government ship we had the best conditions on earth. She was about 6,000 tons, built in Australia, and we carried twelve A.B.'s — three in a watch and three daymen the whole time. We worked four on and eight off, sailors and firemen alike. With three in a watch of only four hours, and eight below, it was a grand life. We had bedding supplied, and linen changed twice weekly. We were paid eighty dollars a month, just for being there, and if we ever did anything — why, that was overtime. For every week we spent at sea, we had to have a solid eight *working* hours — working hours, mind, not just any sort — leave in the next port, if we wanted to take it there; and if we didn't want to take it we could have overtime for those eight hours instead. The option was our's, not the Mate's. The Mate was a glorified cargo clerk; the Old Man was a navigator; and the second and the third mates kept a watch on the bridge. . . . We had an airy messroom on deck, a grand poker school in the firemen's fo'c's'le, five-course breakfasts, and cocoa (with milk) at the changing of the watch, a pretty free hand in disposing of the ship's surplus stores in odd ports in the East when nobody was looking — and the most trouble I ever saw in any ship that ever sailed, bar one. . . .

I remember lying in Newcastle-on-Tyne, where we had put out a cargo of Australian wheat. It was necessary to shift the ship one day, in ordinary working hours. The crew was supposed to be painting the side, on stages. When the tugs came alongside to move us, there wasn't a sailor to be found. It required only two or three to haul in the mooring lines. The Mate came aft to the place where we lived. (The fo'c's'le was in the poop, war style.) He knocked on the scuttle. He knocked again. No answer. He kicked it hard. No answer. He kicked it again.

At that a beery fireman, whose sleep he had disturbed, turned over in his bunk and roared, with appropriate epithets, that if that bleedin' noise didn't stop right then he'd be up on deck and doing something about it.

The Mate yelled back that he wanted a few hands to come up on deck and help shift the ship.

"Huh," grunted the fireman as he turned over in his bunk to go to sleep again. "Shift the bleedin' ship yerself. Wot d'yer think us bleedin' taxpayers keeps yer for?"

And the Mate had to hire some hands from the shore. There was nothing he could do about it. You see, at that time the Australian Seamen's Union was a pretty powerful concern. If he had made trouble, well, we'd have held the ship up. If that hadn't brought him to see reason, why, all the other fellow-unionists of all the other government ships would have held their ships up, too. And if that hadn't settled things, then all the other unionists in all the other ships under the Australian flag would have downed paint brushes, chipping hammers, and soogee swabs, and all the wharf laborers and the stevedores would have walked off the job, and all the carters would have refused to carry the merchandise from the wharves, and all the railroad men would have refused to handle anything going to the wharves — and we'd all have gone to the races and had a good time and the ships could go to hell. That was the way we did

things those days. It didn't last, of course: but it lasted longer in Australia than it did anywhere else.

In the government steamer we — the crew — held her up four days waiting for a drunken fireman to be discharged from the Cape Town jail. We wouldn't go to sea without him, and we wouldn't stand for any other fireman being shipped in his place.

But that was nothing to the *War Oboe*. The government steamer was a deepwater trader, and at least while we were at sea we had to behave. The *War Oboe* was one of those standard war-built steamers that were turned out by the gross during the war, and some misguided Australian capitalists had bought her to run coal on the Australian coast, from Newcastle, New South Wales, to Melbourne, and odd trips to Adelaide and Fremantle before those places started buying coal from Newcastle, England — 12,000 miles away — but cargoes from there were much more certain of delivery than cargoes from New South Wales. . . . The *War Oboe* was brought to Australia by an English crew who were promptly sacked when she got there because they were not in the Australian union, which of course had the monopoly over all coasting jobs. Thousands were spent making her comply with the Australian Navigation Act — improving the accommodations for the seamen, fitting her to have about a third as big a crew as had brought her from England, and so on.

Then, when everything was ready, the Mate came ashore to get his crew. He didn't pick them. Oh, no. That would have been infringing the rules of the Union, and the *War Oboe* would never have got to sea at all. A good Mate who knew his business rang up the Union secretary when he wanted a crew, and the Union sent him such stalwarts as were at hand and short enough of beer money to be looking for a berth. It was a strict rule that no man should seek a berth for himself. No, the Mate must come to you, through the Union. Which meant, if you wanted a job, that you'd better get busy buying the Union secretary beer. . . .

We shipped our twelve A.B.'s and our six trimmers and our nine firemen, our three cooks and our messboys and our officers' stewards, our two wireless operators and our five engineers, our six greasers and our cooks' offsiders, our lamptrimmer, bos'n, carpenter — about 48 of them altogether, for a 3,000-ton collier. They were chosen rather for their Union records than for any proficiency as sailors, though I will say that they were good enough steamboat hands. Most of them had held up big ships in their time. It used to be a great game then, 'round the Australian coast and in the five big passenger liners of the government lines, to let all the passengers throw streamers to their friends and wave their goodbyes, and then the crew would discover that some drunken fireman was missing and the passengers could hang on to their streamers and staunch their tears, and shout their goodbyes and their good wishes, hour after hour, until the drunken one returned and at last the ship would get to sea.

"Wot's wrong? You bleedin' coal-heavin' blood-sweatin' useless bums! Ain't yez never 'ad pickles in yer 'omes?"

There were grand yarns in the *War Oboe's* fo'c's'le about such incidents as that. I felt a bit out of it. I had been in sailing-ships, mostly, where the only thing you did was work and nobody threw any streamers. . . .

Beyond catching her anchor on an electric cable in Sydney harbor and darn near electrocuting everybody in the ship, and then having her steering gear break down and getting in the trough of a nasty sea, the first voyage of the *War Oboe* passed without incident. By some oversight all the firemen were aboard when it was time to sail, and there was no hold-up. But that came.

It was the second time we were in Newcastle, loading coal for Geelong. Things went well, strangely enough; our Mate was a good sort, the bos'n gave out plenty of overtime, the Old Man kept himself to himself and never bothered anybody, the cook was competent and the food good, and the steward saw that there was plenty of it. We had good quarters. Our laundry was well done for us. Our eggs in the morning were done to a turn, and the coffee was good. There were no lumps in the burgoo and the sausages had as much meat in them as there was bread, which is saying something. We had electric fans in the fo'c's'le, reading lights in our bunks, and the crew were contented enough. There was no such thing as a "whack" of food; there was plenty for everybody, and more if they wanted it. One of the A.B.'s had his son as messboy, and his son used to take home a sack of tins of jam and such each time we were in Mel-

bourne. We had the breeze up the Mate and the bos'n knew that if he didn't give us plenty of overtime he'd be hauled before a Union inquisitorial meeting and expelled. That would be the end of him.

The *War Oboe* was a good ship — for everybody but her owners. And they were capitalists. To hell with them. . . .

Just as we were about to sail from Newcastle, with a gutfull of coal and the hatches still off, a drunken fireman came aboard. His name was Taff. Taff was always drunk, always last aboard. The only curious point about his late-coming seemed to be that he hadn't waited until after the time the ship was due to go. That was too bad, a lamentable oversight on his part. Still, he was very drunk.

Taff climbed the gang plank, lurched along the decks, tripped over in some untrimmed coal, fell down the fo'c's'le companion, and brought up sharp on a messroom form. Here he glowered upon the scene of the evening meal, set before him. (No messboy dared clear the board ere his masters had partaken of a full repast, no matter how late the last drunken one of them might be.) There were sausages, there was steak, there were boiled and fried potatoes, cabbage, carrots, plum duff, soup, plenty of bread and good fresh butter (bread baked ashore; we wouldn't stand for the cook's own efforts), coffee, cocoa, tea. There was everything there a man could wish, and more in the galley if he wanted it.

There were pickles, Worcester sauce, mustard, tomato ketchup. Taff's baleful glance fell on the pickles. Ha! Here was something! They weren't the kind of pickles to put before men! He had just come from a swell restaurant ashore (they had thrown him out), and he *knew*. The pickles were in neat glass jars there; here they were in a great, ungainly stone jar. Put pickles in a stone jar before gentlemen of the sea? The hell they would! That bloody snickering steward again; who ever let stewards get born? They were the natural enemies of all seafarers. Only a steamboat steward would think out such a refinement of torture as offering firemen their pickles in a big stone jar.

Taff rose, with difficulty, and roared like a bull. Some of his confreres came in.

"See them crimson pickles?" Taff roared at them. "See 'em? Gor blime, see 'em? Call yourselves good Union men an' yez'll go to sea in a ship with — hic — pickles like that! Not fer me, mates! Not fer Taff! I don't go to sea in this son-of-a-bitch of a ship till they gives us pickles like men. . . ." And lots more of the same persuasion.

His comrades, slightly fuddled, looked at him in wonder. What was wrong with the pickles? They didn't know. Still, there must be something or Taff wouldn't be setting up such a yowl.

They asked him what was wrong.

"Wot's wrong?" Taff howled. "Wot's wrong? You bleedin' coal-heavin' blood-sweatin' useless bums! Ain't yez never 'ad pickles in yer 'omes? They ought ter be in glass jars, not in wallopin' great stone bunkers! That ain't no way to give 'em to men. . . ."

"Well, let's see the steward 'bout it," volunteered one of the trimmers. "Taff's right. They ain't no good pickles, anyway."

One of them looked in the sailors' fo'c's'le and roared the news of the lamentable inefficiency of the pickles, the steward, and the whole bleedin' ship. They were going along to see about it, they said. The sailors had better come, too, if they was good Union men.

That brought them. Good Union men? Why, if any man was in a ship where a hold-up was on, or any sort of trouble at all, and he didn't take a noisy and vociferous part in it — well, his number was up as far as getting a job 'round the Australian coast was concerned. And that was the best coast in the world, those days.

They marched along to interview the steward. The ship was shortened up; the cargo was all aboard; she was ready to go. The gang plank was aboard and the pilot on the bridge.

They hauled the steward out of his bunk with oaths. Taff was the spokesman. It was some time before the unfortunate steward could discover what it was all about. When he did, he began feebly to explain that the pickles in the stone jars were the best quality, anyway (as they were), but that didn't get him anywhere. It was Saturday night and impossible to buy any more pickles. He promised to get them in the proper receptacles in the very next port — but that was no good.

"We wants 'em now!" Taff roared. "Ain't that right, blokes? We wants 'em now or we don't take this ship to sea. Ain't that right? Ain't it?"

It was right enough. The Mate came down and blustered a bit, but the sailors soon put him in his place. The Old Man listened in a moment, then went to his cabin and banged the door. The pilot went ashore. We put out the lines again and there the ship stayed.

When the week-end was past a telegram came from the owners in Melbourne, fed up with it at last, to tie the ship up there at the buoys and leave her, and pay the lot of us off and pack us back to whatever ports we called our homes.

But Taff and his ilk had the last laugh. There was a clause in the agreement with the Union to the effect that, if a ship was paid off in any port other than her home port, no matter through what cause, everybody in the crew had to be given a railroad passage to his home, together with full wages until the day he got there. Some of the crew came from Adelaide. Taff came from Fremantle, West Australia. He drew about £10 from the ship after he had left. . . .

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Going sadly down to Melbourne in the train, I asked myself was this what going to sea meant? I took a look at Taff, snoring blithely and in drunkenness on a seat in the train, and decided that the steamers could go where he was going. That was pretty quick to hell.

Off to new grounds. The luggers used in pearl fishing are beautifully modeled and very able

Pearl Fishing in Northwest Australia

By CAPTAIN J. R. GREY, F.R.GS.

PEARL fishing, as it is carried on in Northwest Australia, is one of the few industries left in the world that might be described as romantic. Even though I have sailed the seven seas in almost every kind of craft, large and small, it gave me quite a thrill when I first saw the pearling fleet sail out of Broome at the beginning of the 1930 season — 90 trim little 15-ton ketches, painted and shining, "pride of ship" written all over them.

All the "luggers," as they are called, are built at Broome or in the nearby creeks. This part of the coast abounds in hardwoods suitable for frames, stems and sternposts. The cost of these pieces is merely the expense of a woodcutter's license (2/6) and the labor of cutting down the trees and shaping the required timbers. As they grow close to the sea or tidal creeks, transport is a small item. For planking, that famous wood, West Australian Jarrah, is used, and the decks are of Burmah teak. Many a crack yacht might envy the material that goes to construct these little ships.

After the timber for a new vessel has been seasoned for the required time, the actual work of construction is pretty rapid; four or five months from the time of laying the keel will usually find the boat in seagoing trim. The average measurements of the present-day luggers are 55 feet o.a., 47 feet w.l., 13 feet beam, by 5 feet 6 inches draft, with all inside ballast of about seven tons, besides tanks holding a couple of tons of fresh water below decks.

Great strength, combined with fast sailing and handiness, is the keynote. The first quality is essential not only from the seagoing point of view, but because of the fact that when in Broome or any of the creeks the luggers must take the ground at low water (30 feet rise and fall), often with many tons of shell, stores and water in their hulls. A vessel less stoutly built would soon strain to pieces, but the luggers stand this test and the continuous snubbing at their anchors in the open sea after the day's diving is over, for many years.

The spars are heavy and the sails seem even more so, being usually of No. 2 canvas. The owners assure me that anything lighter would rapidly go to pieces as sails are set from dawn till dark, and sometimes all night as well, for a season of nine months, with only two or three short spells for scrubbing bottoms and re-provisioning. This is a fine weather coast (except for the occasional hurricanes which sweep all before them), but a period of nine months almost continuously at sea constitutes a severe test, and the good workmanship put into hulls, spars, and sails is by no means wasted.

In nearly all cases the owner of a fleet of vessels has his own building and repair yard — a simple enough affair consisting of an iron roof under which are the stocks, a sailmaking shed and store, perhaps a band saw, and the usual shipwright's kit of tools. The policy of "White Australia" does not yet hold good on this coast, so the labor is indentured for a period, from Japan, Timor and the Malay States. The boss shipwright is invariably a Japanese whose pay is £15– per month and all found; the other workmen are on a descending scale to about £4– per month and found. Although these wages would be high in their own countries, they are low for Australia and there is no doubt but that the workmen really earn them. Not only do they do a good day's work, but they take enormous interest and pride in the job. The luggers are copper-fastened throughout and copper-sheathed over keel and garboard strake, under the forefoot, rudder stock, and trunk, and on the curve of the bilge below the mizzen shrouds, where the divers' heavy boots might damage the planking when coming to the surface; elsewhere the bottom is coated with antifouling paint. Below decks is a small two-berthed cabin under a raised house aft in which the divers sleep. This is entered through an after scuttle. Forward of this the rest of the ship is an open space reached through a large hatch, at the forward end of which are ranged the bunks of the crew. It is as well that the vessels are not cut up into smaller compartments as the heat below during the summer months would be even greater than is now the case. The galley on deck, which turns out quite good food and fresh bread daily, is in the form of a

small timber and canvas structure, just abaft the mainmast.

A lugger as here described, built today with everything of the best and complete for sea, with a good dinghy, costs about £880–. The motor engine (for driving air compressors), air storage bottles, and diving gear cost another £450– to £500–. A few of the luggers have auxiliary motors of about 12 b.h.p. giving four knots, but up to the present, with the steady, regular breezes of this coast to rely upon, they are not generally thought to be worth the kerosene bill. Personally, I think the time for slightly larger boats, driven by Diesel motors, is drawing near, but there would be the difficulty, at the beginning, of handing over an expensive motor to the mercies of untrained men. As it is, the present crews do understand handling sail, but may or may not prove to be efficient Diesel mechanicians.

Luggers with divers in the water, working over the shell beds

On this part of the coast the sea bottom is one enormous bed of M.O.P. shell. It starts at low water spring tide mark, and continues out to deep water — nobody knows how far. The soundings are extraordinarily regular. Roughly speaking, five miles from the land is five fathoms L.W.S., ten miles, ten fathoms, and so on, out to fifty fathoms or more. Although the fleet may be working only fifteen miles from the land, the coastline is so low that for a week or more it may not be sighted, but this relation of distance from shore and depth of water is so regular and the divers know the bottom so well, that they can steer a good course home from anywhere on the grounds in spite of the fact that no proper log is kept to check the position of the vessels.

Thirty-eight fathoms is about the limit of deep diving. From greater depths the divers have to be "staged" to the surface, that is, given a rest of twenty minutes every seven or eight fathoms to allow them to get accustomed to the different pressures. This wastes valuable time, and diving in more than about fifteen fathoms is not common.

The fleet usually puts to sea about the beginning of March, after three months of overhauling during the summer rains and squalls, when this region is most likely to be visited by the dreaded "Willy willy." The storm of 1908 cost the pearlers many boats and lives. Each lugger is commanded by the head diver, nowadays usually a Japanese, though there are still some Malays at the work — a survival of the days when the diving was entirely in their hands. The crew numbers eight, which seems a large complement for so small a vessel, but after putting in a day on board one realizes that this is not one too many.

At the first crack of dawn all hands turn out, have a quick breakfast, and the divers are in their suits by the time that sail is made and the anchor is aweigh. So soon as the sun shows, over go the divers, while the ship sails slowly along with the wind on the beam, main and mizzen booms well off, and the headsail half down the stay. This is locally termed "drifting." The boat is making headway, but also considerable leeway, while the divers are dragged through the water astern or out on the weather quarter with their toes scraping along the bottom. Each diver has a tender to whom he can literally "talk" over the lifeline by a series of jerks and shakes. The head diver still handles the boat while submerged and gives such orders as "wear ship," "ease main or mizzen sheets," "lower jib," "'bout ship," etc., from the sea bottom! Any yachtsman can imagine the niceness of handling required to get way on the ship and then stay her around to the position requested from the sea bed, while the divers' tubes and lifelines have to be shifted around to the other side and kept clear. It is a very pretty sight to watch twenty or thirty boats bunched up together over a rich patch of shell, with tubes and lines streaming out in all directions, being handled without fuss, noise or hesitation.

The divers are so heavily burdened with clothes, helmet and weighted boots, to say nothing of a net bag round the neck carrying the shells, that they are pretty helpless; hence, if they see a likely patch of ground a few yards away the lugger must be signaled to carry out the required maneuver to drag them over the place. Then the ship must slow down and line and tube be payed out to allow them to stop and pick it clean.

Hauling a diver to the surface

The work goes on with an occasional short spell until

(*Continued on page 111*)

How Not To Do It

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By CONOR O'BRIEN

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BETWEEN the serious jobs of sailing to New Zealand and sailing home again I intercalated the comic relief of sailing for pleasure. It was real yachting, as carelessly planned and carried out as any of the cruises which make sport for the yachting magazines.

I want to say right here that I do not start to cross the oceans in this casual manner. I like to have things arranged so that, given average weather, I do not meet with hair-raising adventures. When I write about my voyages people say that I've made them out too easy. They don't believe me; and if they happen to be journalists they write adventures of their own imagining into my stories. It hurts my vanity to be discredited with difficulties which I have been careful to avoid; also, it's bad Art — if I want lies I reckon I can tell them myself with more circumstance than any longshore reporter.

Well, I got a bad Press in Melbourne. It appeared that anyone who went to sea in a boat like my *Saoirse* was plumb crazy. That didn't help me to find a crew of the sort I was looking for, a thoroughly sane one. (The crew I had just lost was that sort. They saw there were plenty of jobs for them in Australia at double the wages they would get in England, so they had the sense to forfeit their pay-day and skip out of the ship.) Maybe the newspapers were right, and any Australian who signed on a British ship was crazy. In the end I signed a Britisher. It was a mighty sensible proposition for him, because he was on the beach, and I offered him Australian wages; besides, he wanted to get home. But he had no luck about that; shortly after we started he broke his knee, and we had to put back to New Zealand and land him in a hospital. I kept him on the ship's articles, to form the nucleus of a crew in case I was ever able to make another start; I wanted somebody more sympathetic and entertaining than the beach-combers who would likely form the rest of it. But I had grave doubts as to whether my resources would allow me to bring the yacht home at all, so I went up to Auckland to see if I could sell her.

I found no buyers, but plenty of good advice. I was told that it would be suicidal to sail before the spring — it was now May, which is winter there. Not that the weather off Cape Horn is any worse than in the summer, but a small and heavily-rigged boat like mine might get so sheeted in ice that the sheer weight of it might sink her.

The next advice was to put in my time among the South Pacific Islands. I gathered that my advisers would have done this long since, only there were no yachts in Auckland fit for the voyage; so I invited them to come in mine. Perhaps I cherished hopes that if I made the island cruise comfortable enough I might induce some of the party to help me home. But it seemed they didn't think *Saoirse* was fit even for the thousand-mile passage to Tonga.

After a couple of months my mate was well enough to rejoin the ship, and he was quite keen about the cruise —

The sails ceased to slam and the crockery to crash in the Southeast Trade

he felt it a bit on his conscience that he was drawing one hundred dollars a month and doing nothing for it. But I wanted to get a third hand, in case of accidents; if possible one who would contribute something towards the expenses, which were getting rather too much for me.

While we were looking for the volunteer I devised some rigging work to keep the mate busy, but it sort of soured on him. Also, I sent all my heavy weather sails ashore for an overhaul, and we bent the old tropical suit. They weren't much for sails; I hadn't meant to use them again after they had brought me down from Madeira to Pernambuco, but I hate condemning things. I also hate having my sail-room crowded with things, so, as I had somehow got it into my head that this next two months was going to be uninterrupted fine weather, I cleared out everything except one storm mizzen (which was so small it was overlooked), and, as I have said, bent a marvelous rotten set of rags. The work might have been done better, but I didn't criticize it, not because the mate had a captain's license and far more experience than I, but because the atmosphere was rather thundery those days. I didn't mind that much; I reckoned it would calm down once we got to sea, so I was careful not to provoke an explosion which would have lost me a man I valued very highly.

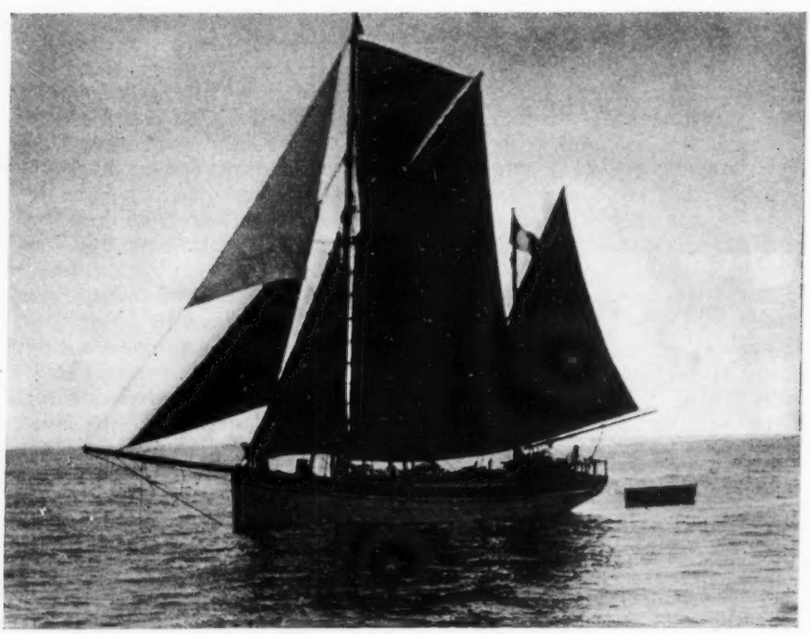
It was the mate who discovered a volunteer, an Australian, who claimed to have done considerable yachting, and a capitalist too, for he contributed twenty-five dollars in cash and twelve dozen of bottled beer. I got ready for sea at once, and went to the custom office to get a clearance for Nukualofa, in the Tonga Islands.

Just as I was swearing before the officer that I carried no cargo, passengers, nor mails, a messenger came in from the post master to say that he was sending one bag of letters and two of parcels for shipment by the *Saoirse* to Nukualofa and Vavau, and also a diplomatic bag for H. B. M. Consul. I made no objection, though the freight offered was not particularly attractive, for I had cleared my sail-room to such good purpose that there was space

for twice as many bags, if they would go through the hatchway. Besides, I am a singularly bad starter, and it takes a mail contract to ensure my sailing on any given date. Otherwise, I certainly should not have started on the day I did. It was dull and rainy, with the wind right ahead, and I spent the freight for the mails (and four bundles of newspapers shipped surreptitiously at the last moment) on a launch to tow us clear of the wharf.

I wish I had waited for a fine day and a fair wind, and kept my two dollars in my pocket and my crew in a good temper. It was a depressing job tacking about in a lumpy sea and getting nowhere in particular. The mate and I were kept busy seeing that the ship didn't drift into any rocks or islands. The volunteer staved off seasickness with beer, and remained in his cabin. The wind grew lighter and lighter, the sea more and more confused, and it took us thirty hours to get properly clear of the land, and sailing with any degree of speed and comfort.

Even then it was only the elements that provided any comfort; the ship was working very badly. The volunteer showed no signs of making himself useful, and this got on the nerves of the mate, who felt responsible for introducing him. On the third evening he was persuaded, after a good deal of urging, to take the wheel. The night came down a little squally — not much wind, but heavy rain. I was on the point of going on deck to see if the helmsman had a coat, or wanted a relief for any other purpose, when, to my amazement, he marched into the cabin as bold as brass — to get out of the wet! Of course, the ship broached-to, the tack of the squaresail carried away, and the sail put up an intensive barrage across the fore-deck, which I had to dodge to get at the brails to stow it. If I made any comments on the situation they were surely justifiable, but they annoyed the mate. He flared up in defense of his protégé, and swore he'd do no more work on board the ship.



The Tricolor of the Irish Free State flew from "Saoirse's" mizzen masthead

I snugged her down so she'd look after herself through the night, and considered the position. I guessed those Melbourne reporters were about right, and my crew was plumb crazy. I didn't mind about the Australian; I'd written him off as a passenger, anyway, and reckoned his twenty-five dollars as his fare to Nukualofa (I didn't get a look-in at the beer). I'd seen the mate go off like that before; but never at sea, so he might be all right again next day. Only it was clear that I couldn't depend on him; and right here I began to worry for the first time about those old sails; if we took to playing the fool with the ship they were mighty likely to split up past all repairing. If this had been "sure enough" yachting, we should have headed back to New Zealand (though there was a fresh S. W. breeze, and more coming), only I'd compromised the situation by those mails — and especially the consular bag marked "Urgent." No, we'd just have to carry on, as carefully as might be; and I'd have to take in that squaresail if I thought there was any trouble coming, for it wasn't a single-handed rig, as it was then fixed. And that was a pity, because it was the only bit of canvas in the ship I could trust in a breeze. I figured that we should have the close reef in the mainsail most days, and it would be a darned slow passage; but I was going to hit those islands, if we took a month to do it.

Next day it breezed up good and strong, and the mate returned to duty; but I still felt a bit dubious, and didn't set the squaresail. That wasn't the only thing that spoiled our run. We had two calamities that evening, but as they were acts of God, or, at least, not the fault of anyone on board, they rather pulled us together. I expect it's really a mistake for a long voyage to go too smoothly; we work best with a little opposition, and if we don't get it from the elements we look for it in our shipmates. The first trouble was that the screw which held the steering chains on the drum broke, so that they slipped around it and we couldn't steer. In a way, I was responsible for the next breakage, because instead of taking in the mainsail and letting the ship run before the wind under her two headsails (which she would do perfectly well with the rudder wedged amidships), I hove her to; but how was I to know that a shackle in the jib sheet was going to break as she rounded up into the wind? But it did; the sail gave one flap and dissolved into ribbons. It was going to be a daylight job drilling out the broken screw and tapping the hole for a new one, so we stayed hove-to all night, while a good half gale blew itself to waste past us.

Next day, after I had fixed the steering gear, we started to sail the ship properly; that is to say, we set the squaresail again. The mainsail was having a partial rest; somehow, we had let it get too low while we were hove-to, and it had chafed against the top of the harness cask till it developed a big split in its foot. I couldn't mend it till the rain stopped, so we kept the close reef in to cover up the wound. I judged this sail would stop our rolling somewhat, but it didn't, for there was now a horrible sea; all it did was to part a sheet strop. This mainsail had no boom, for I think booms are the things most to be avoided on an ocean passage, but it had two sheets. That made the sail very safe, but the loose sheet curled itself around the galley skylight, lifted it off its coamings, and smashed it.

(*Continued on page 120*)

"Dandy" embodies the experience gained during a century of lifeboat design

"Dandy"

The Successful Conversion of a Lifeboat into a Shoal-Draft Yacht

By E. G. MARTIN

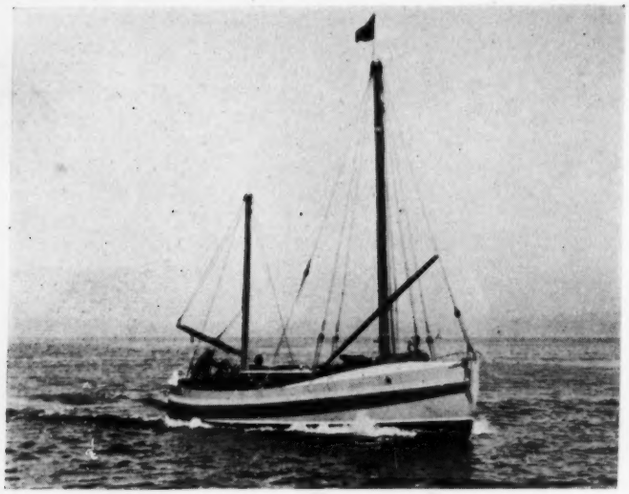
I HAVE fallen in love with many boats, but never more wholeheartedly than I did with *Dandy*. My first acquaintance with her was when I was shown her lines at the headquarters of the Royal National Lifeboat Institution in London. Being the work of the late G. L. Watson, who to my thinking, remains as the greatest of all British yacht designers, they were of especial interest. I was fascinated by them and, later on, when I saw the boat herself, she seemed even finer than I had imagined. As one would expect from her origin, she is a magnificent sea-boat.

In common, perhaps, with many people who are accustomed to deep, heavy displacement yachts, I have not liked the behavior of shallow boats in rough water, but *Dandy* is the exception; I would trust her anywhere. She is an example of the latest and finest type of sailing lifeboat ever produced by the Lifeboat Institution, the embodiment of the experience gained during the best part of a century. Her lines, only slightly modified, still form the basis of the designs for the motor lifeboats which have replaced those which depended upon sails and oars. *Dandy* is, I should imagine, the most powerful seaboat of her length and draft which could possibly be built, she makes a splendid shallow draft cruiser and I hope that some account of her may be of interest to readers of YACHTING, especially as there is more scope for shallow draft yachts in America than in British waters. The following are her dimensions: — l.w.l. 40′ 9″; l.o.a. 43′; beam 12′ 6″; draft, fixed, 3′ 6″, with centerboard 7′. Iron keel, weight 4 tons. Centerboard weight 927 pounds. Planking, double skin mahogany. Displacement 12 tons. She was built in 1904.

For the information I have received and for permission to publish these lines, I wish to acknowledge my indebtedness to the Royal National Lifeboat Institution, to Mr. Barnett, of G. L. Watson & Co., and to Dr. T. H. Ward, of Totnes, Devon.

My first introduction to *Dandy* came in the form of a letter from my friend Dr. T. H. Ward, saying that he had taken a great fancy to a lifeboat which he had seen laid up at Cromarty. She had been replaced by a motor lifeboat and was to be sold out of the Service before long. He suggested that I should go to Lifeboat House and look at her plans, so that I could let him know what I thought of her. I did not feel very enthusiastic, because I had never seen a converted lifeboat which seemed to justify the expense of making her into a yacht. All those which I had seen were of the self-righting type which has a very high superstructure, filled with buoyancy tanks, at each end, impossible to deal with satisfactorily. However I know nobody who has a keener eye for a boat than Dr. Ward, and felt sure that if he had taken a fancy to this one, there must be some good reason for it.

By great good fortune, when I went to Lifeboat House I was able to see Mr. Bone, who is not only our greatest authority upon the technicalities of lifeboat design, construction and equipment, but is also keenly interested in everything to do with yachts and seamanship. He showed me the lines of the Watson 43-footer which are here reproduced. The boat was not at all what I had expected, she is not of the self-righting type. I think readers will agree that the design is a real work of art, such as one might expect from the genius of G. L. Watson. Mr. Bone and I spent some time discussing the plans, and he showed me others of earlier boats in which one could trace the evolution of this 43-footer. Besides the designs, he produced stability curves and data of all kinds, from which it seemed clear that this particular type was by far the finest sailing lifeboat ever produced by the Institution. He showed me how the largest and most modern motor lifeboats, really wonderful craft, are essentially enlargements of this design, merely modified at the stern for the accommodation of the propellers.



The original lifeboat rig was very short, but drove her nearly nine knots on one occasion

I wrote to Dr. Ward telling him how much I liked the lines of the boat, and it was not long before she was advertised for sale, and he was fortunate enough to secure her. It was arranged that she should be delivered to Messrs. Miller who have a yacht building yard at St. Monans, a fishing port some distance south of Cromarty, on the east coast of Scotland, and the following is the short account of her trip. She was in charge of her old Coxswain, John Watson, and with him were his young son and one other man.

"Sailed from Cromarty on Monday December 3rd under a light N.W. wind, 3.30 P.M. When off Buckie wind increased to half a gale; still N.W. and the boat made good headway with all sail set.

"Abreast of Rattray Head at 1 A.M. Tuesday; wind increasing, with strong showers of hail, to about 60 miles an hour. Heavy sea but boat behaved well. Abreast of Aberdeen about 8 A.M. Tuesday. Weather more moderate. As we ran all night, went into Johnshaven about 2 P.M. Tuesday.

"Resumed sailing 4 A.M. on Wednesday, with strong gale W. to N. When nearing Arbroath the wind went more west and we had to beat against a strong head wind until we were within a few miles of St. Monans. When one mile off our destination, wind became almost calm with a strong current. Consequently hailed a passing vessel and the captain kindly gave us a tow to harbor.

"The boat behaved admirably and I never wish to be in a finer sea-boat. When properly handled I think she would live in any weather. I know her capabilities well as I have been her Coxswain for many years. She is in excellent condition and quite unscratched, and in my opinion she is as good as the day she was built.

J. WATSON."

On this passage the boat sailed a distance of about 150 miles in 32½ hours under way. It was a fine performance off the northeast coast of Scotland in an open boat in the depth of the winter.

A few weeks later, Dr. Ward and I went to St. Monans and found the boat hauled out. She was blocked up well clear of the ground, and one could get a good view of her from every angle. It is by no means every boat which looks as well in being as she does on paper, but from every point of view this one was a real delight to the eye. It is a marvel to me that anyone could have worked out the rectangular mid-section into such lovely ends.

Lifeboats are made unsinkable by means of white pine buoyancy cases covered with thin duck treated with a sort of black varnish. They are shaped to fit the boat and fill the whole of the space between the bottom planking and the watertight platform, which is slightly above the water level. A number of large drain pipes, fitted with non-return valves, allow any water which comes aboard to run away very quickly. All the cases, and the whole of the platform and the drainpipes were removed, except where the cockpit was to be, abaft the engine room. The bottom when it was thus opened out for inspection proved to be in absolutely perfect condition. It was now possible to measure up the internal space and plan the accommodation exactly. Dr. Ward's arrangement is shown in the plan, and proved to be most comfortable.

In the engine room are two 15 h.p. Kelvin 4-cylinder engines, running on kerosene, and electric light is supplied from storage batteries charged by a dynamo which can be driven off either engine, at will, by means of a leather belt. One engine drives the boat at just over six knots, and with both she will make nearly eight. This shows, I think, that she must have a model which can be driven very easily. She is certainly capable of sailing very fast in a strong wind, and at no speed is there any noticeable wave making.

Nothing was spared which might make the best possible job of the conversion, and the work took some time, so that it was not until the early part of June that the boat was ready for sea and I joined Dr. Ward at St. Monans for the first cruise in her. He had decided that for the first summer he would retain the original life-

With the new Bermuda rig, "Dandy" sailed well and was light to handle

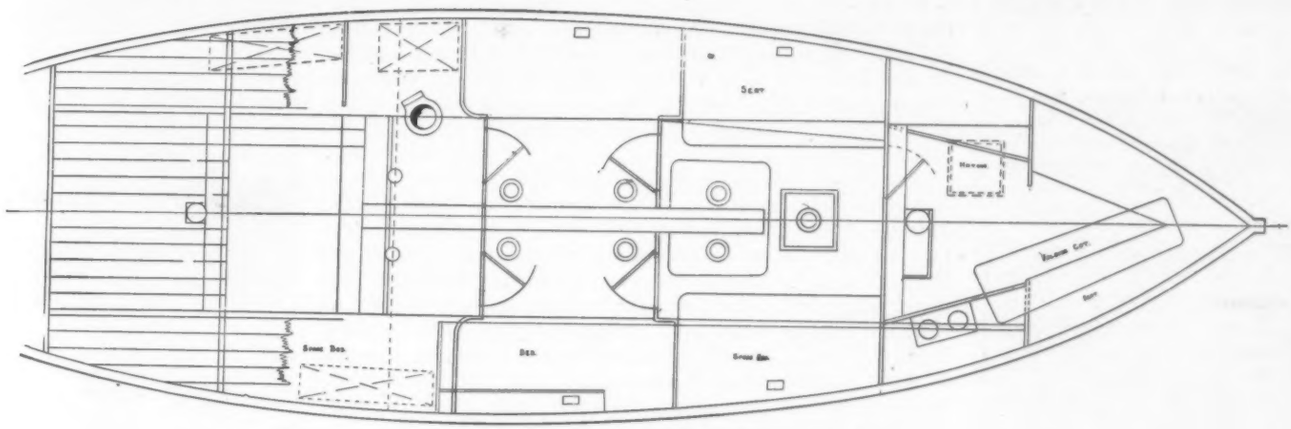
boat rig, which is shown in one of the photographs, and as this gives no more than 500 square feet of sail it was only to be expected that we should have to use the engines a good deal. However, we found that when it really did begin to blow at all the boat sailed splendidly. The whole rig had, of course, been designed for handling by a full lifeboat's crew, and we found the gear heavy and

inconvenient when there were only two besides the helmsman. The centerboard also was really more than two men could hoist properly; but it was certainly worth while to try the boat out in her original trim before designing a new rig.

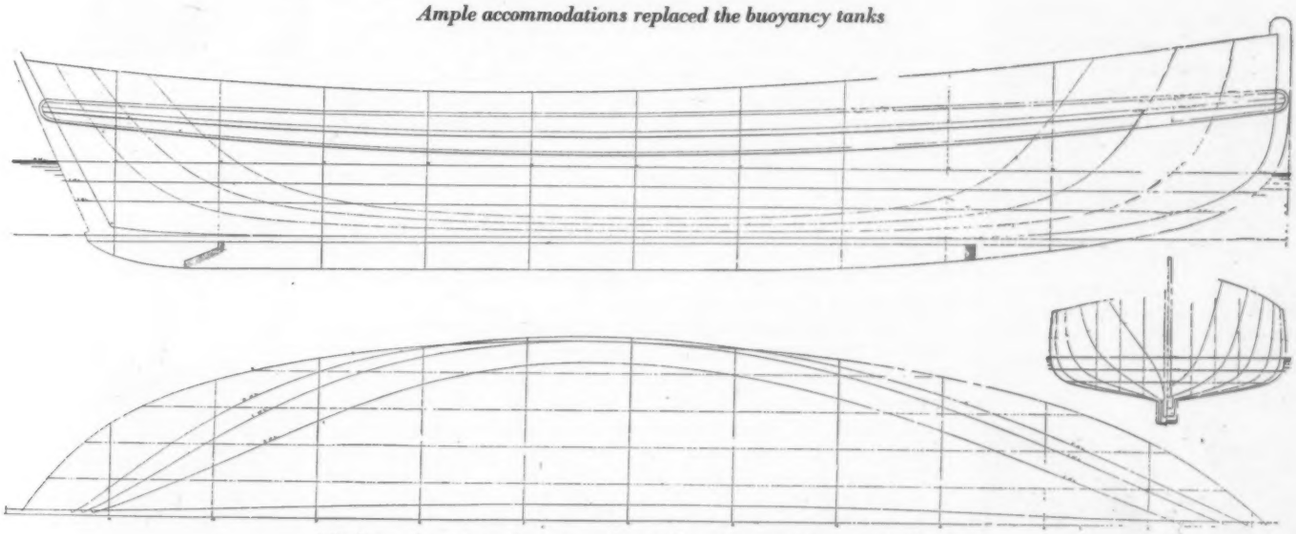
The first idea for the cruise was that we should go North again and explore the Cromarty Firth, and then make our way to the West Coast through the Caledonian Canal. We wanted a day to get shipshape after leaving the yard and so we made Elie, a little dry harbor a few miles South of St. Monans, our first port of call. We lay alongside the quay on a beautifully clean, hard, sandy bottom and were glad to escape from the fearful smells which arise from the mud in a herring port on a warm day towards the end of the fishing season.

Next day we got to sea, and, as there was very little wind, we ran under power past Aberdeen to Peterhead, where we put in for the night. Next morning we sailed again with a strong breeze which freshened all through the run to Rattray Head, where our change of course brought the wind abeam. Then the fun really began, and for an hour or two we had one of the finest sails of a lifetime. We were in smooth water, for our course took us along close under a weather shore. For a time it blew really hard; an ordinary yacht would have been close reefed, but for the lifeboat there was just a nice sailing breeze. When the hardest puffs came she scarcely heeled at all and fairly smoked along. Instead of watching the squalls so as to ease the boat, we gave her the whole weight of them. She would heel over until the great cork fender which runs all round her was just lipping the

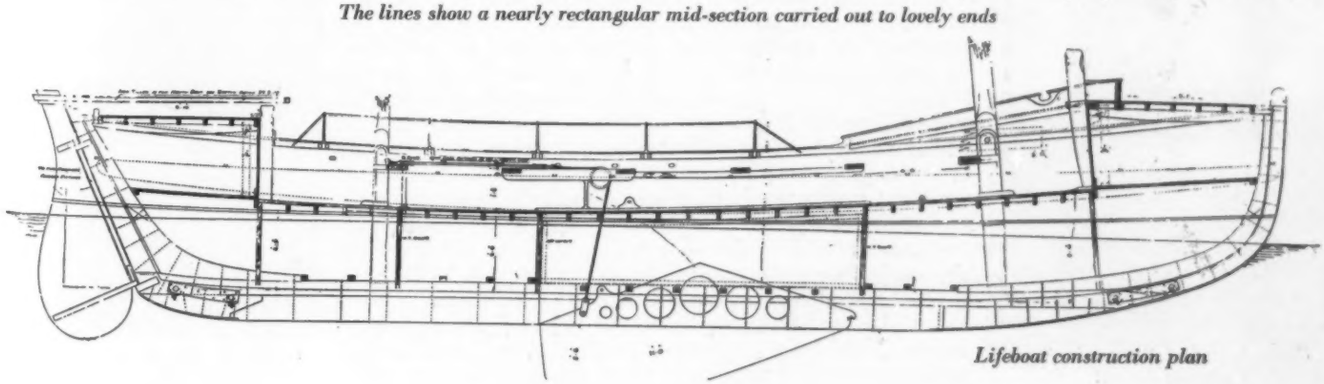
(*Continued on page 111*)



Ample accommodations replaced the buoyancy tanks



The lines show a nearly rectangular mid-section carried out to lovely ends



Lifeboat construction plan

The Funnel Spinnaker

Cinematographic Examinations of the Effect of Wind on Spinnakers With Holes

By DR. MANFRED CURRY

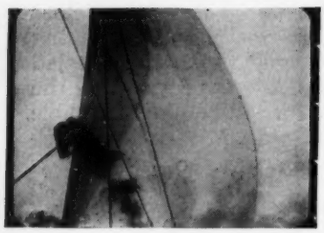


Photo 1.

The small hole placed in the center of the spinnaker is insufficient to discharge the air cushion, and the air current passes around the edge of sail, as indicated by the smoke

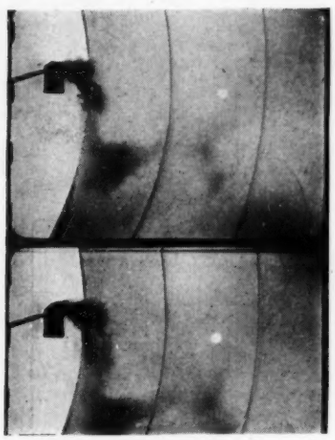


Photo 2.

The smoke, as soon as it reaches the air cushion, is deflected around the cushion, indicating that there is no appreciable air flow through the hole

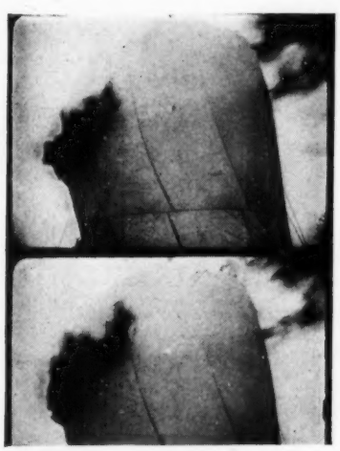


Photo 3. All of the smoke flows around the sail

"IS IT advisable to provide a sail with one or more holes at certain places?" This question arose many years ago but has not yet been answered. In England, Germany and, especially, America, spinnakers with a hole in the center, or a row of holes down the center, have been used off and on. The opinions regarding the value of such holes have varied with the success of the respective yacht. But, as we know, success is not dependent on one, but on many factors, and cannot be set up as a standard for the value of a novelty.

However, these experiments were not without reason. It was believed that the pocketing of the air current, caused by the wind hitting the sail at right angles, could be prevented by a hole which permitted the wind to escape.

For two reasons I have always doubted the advantage of such discharge holes. In the first place, I was of the opinion that the wind would not pass through the smaller holes at all, because the air cushion in front of the sail would ward off the wind current, even diverting it sideways at a relatively great distance in front of the sail. As may be seen in the accompanying sketch taken from my book, the air cushion divides the wind current in such a manner as to divert its course towards both sides of the sail at some distance from the sail, this distance depending on the area of the sail.

In the second place, although the air passing through larger holes would increase the pressure by continuing the current on the windward side, I feared that the suction effect of the sail would be greatly impaired by the filling up of the vacuum. For these two reasons, any advantage seemed improbable to me, on the whole, even though the accelerated wind current might avert the rebound of the main lateral eddies.

As this problem was only to be solved by examinations of the current with the help of smoke, and simultaneous measurements in the wind channel, I decided to experiment along these lines.

I used a catboat's spinnaker with a hole in the center. For the first experiment the hole was a little larger than a fist. At a velocity of 3 to 5 yards per second, the air current was made visible by smoke and photographed from the front, the rear and the side. The accompanying photographs have been cut out from my recent film *Wind and Water* (a film on yacht racing). Photographs 1, 2 and 3 of the smoke experiment clearly show that not only does the wind not go through the hole but that it does not even reach the proximity of the opening. The presence and effect of the aforementioned air cushion on the windward side of the sail are clearly shown in 1 and 2. The air current visibly resists approaching the sail and evades it in every direction (in this case downwards and sidewards). Photograph 3 shows the lee side of the same sail. Here also, it is apparent that the smoke does not touch the hole. The laterally diverted current and the eddies formed at the edges are clearly depicted. A comparison with the sketch proves the correctness of the currents on the spinnaker, as assumed in 1923.

Photograph 4 shows a sail from the side with a hole twice as large. Here the impeding effect of the air cushion is particularly evident. The wind is thrown directly backward, *i.e.*, it rebounds from the cushion and only

Photo 4.

The impeding effect of the air cushion is distinctly indicated by the smoke being thrown directly back from the air cushion. After rebounding, it flows around the sail, following the usual course of the air flow as shown in the sketch.

Photo 5. Smoke will not flow through a seven-inch hole

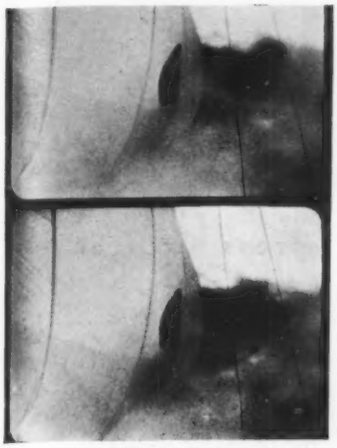


Photo 6.

Even with a ten-inch hole the greater part of the smoke flows around the sail

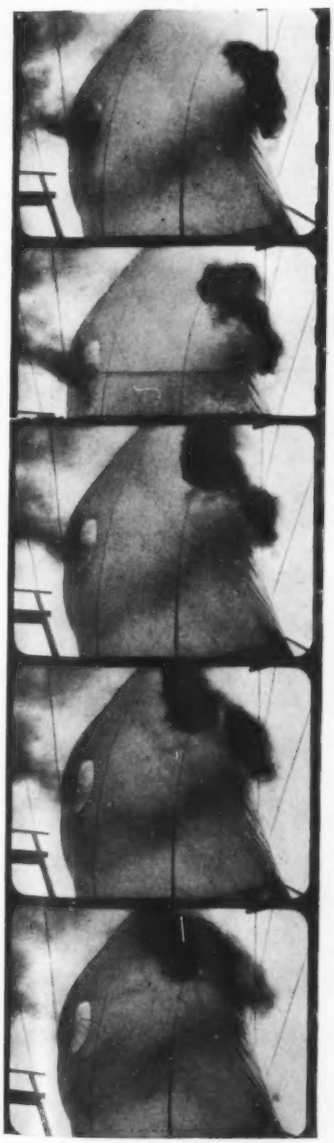


Photo 7. Some smoke passes through the 11¼-inch hole

then flows toward the lateral sail edge. These currents also agree with those of the sketch. The black arrows on the windward side of the sail in the sketch show the smoke rebounding in the opposite direction of the wind. As in Photograph 3, the curved side eddies are beautifully clear. Naturally, the moving picture shows the flow of the current much better.

Photograph 5 demonstrates the surprising fact that the smoke does not even flow through a hole 7 inches in diameter. Here, too, we find the same obstructive effect of the air cushion, forcing the air sideways without touching the hole. Even with a hole of 10 inches, as in No. 6, the smoke flows sideways.

On enlarging the hole to 11¼ inches, we see for the first time, in Photograph 7, a change in the air flow. The effect of the air cushion is decreased, and part of the smoke passes through the hole. But even now, most of it flows past the edges. It was interesting to note that the smoke passed through the hole, especially when the wind struck the sail from the side.

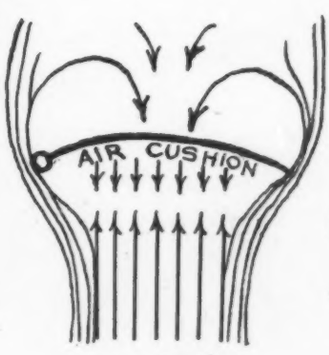
The next experiment, made with a hole 12½ inches in diameter, brought about an entire change in the flow. The smoke now flowed entirely through the opening. The evasion towards the edges ceased abruptly. Photographs 8, 9, 10 and 11 show the course of the current through a hole of this size, 8, 9 and 10 being taken from the windward side, 11 from the lee.

This sudden appearance of the funnel effect seems to depend on the relation of the size of the hole to the breadth of the sail. It may be assumed that in a small sail a small hole will suffice, whereas a broader sail needs a larger hole to produce this effect.

It is natural (and, furthermore, proved by the experiments) that the air current passing through the hole is accelerated. I reasoned that it might be advantageous to catch and use this current again. By fastening a sail to the spinnaker behind the hole, I constructed a sort of "funnel spinnaker." As the resistance of an area increases with the square of the velocity of the flow, a triple accelerated current passing through a hole should produce a nine-fold pressure on an area lying in back of it. In other words, a sail area of 1 square yard should have the effect of an area of 9 square yards.

As it seemed impossible to get exact results regarding the development of pressure *in natura*, I sent a spinnaker, reduced in size, with its auxiliary sail, to the experimental laboratories of Professor Junkers, who was kind enough to measure its pressure with various sized holes, with and without the auxiliary sail. The following results prove that a sail with holes is less effective than one without. The development of power diminishes as the hole increases in size.

(*Continued on page 112*)



Sketch of air cushion

Sketch of funnel spinnaker

Photo 8. Flow with a 12½-inch hole

Photo 9. Smoke flows through hole

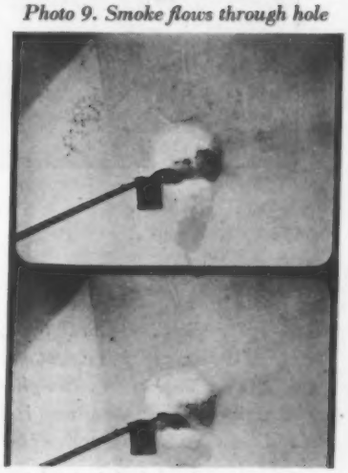


Photo 10. Abrupt change with 12-inch hole

Photo 11. All of the smoke flowed through the 12-inch hole

"Pamnorm"

A New 81-Foot Express Cruiser

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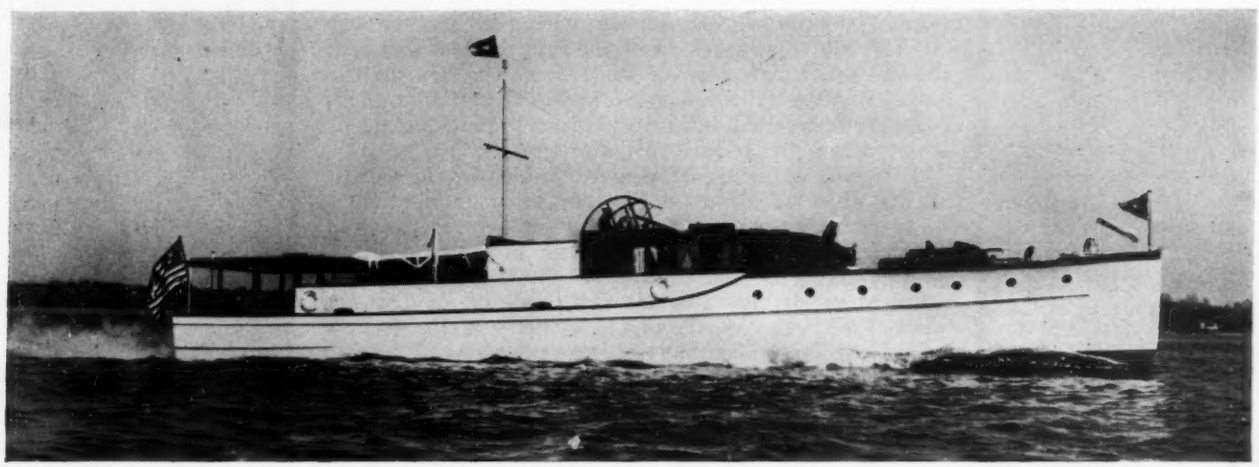
Designed and built by Consolidated for Norman B. Woolworth, of New York



Panelled in natural wood, "Pamnorm" has a neat and shiplike interior. Simplicity in deckhouses and rail cloths add to the grace of her long easy lines. With two 300 h.p. Speedway engines she steps along at 24 miles

Photos by M. Rosenfeld

Samson and Delilah

By CAPT. ABILDGAARD

IT'S funny, how a yarn comes. Just now the woodsy air of a wanton spring morning is drifting in through my open window and I smell violets, or I think I smell them. That will always put me in mind of Kankakee Lill. She loved to dab a touch of violet behind her ears. And so, after lightly reviewing her ancient charms, my thoughts cruise on to old Bill Flower — Collie, we used to call him till we came to change it for Samson — and how he conned the *Tranquebar* before a Chocolate Gale, one black night, by means of his stuns'l ears and the magic of a sugar-wave, as you might call it, in the longish hairs on the back of his head. As a matter of fact, it had all the makings of a real "permanent," though it lasted only twelve hours, partly on account of Lill. At any rate, the schooner was dark from binnacle to running lights and there was only a pernickety little candle-lamp, swinging near the telltale in the skipper's stateroom, by which we could check the canting wind.

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We were sitting at loose ends in the club at St. George's. Collie, an old trader who never could resist the lure of a turnover, had just sold his vessel, a smart little ex-Gloucesterman, to a wealthy planter who had ideas of making a yacht of her. From his pregnant silence, I could sense that Collie was already regretting his hasty divorce from the only home he had known for the past twenty years, though in true sailor fashion he had often sworn that when his chance came he would snug down ashore, somewhere, and confine his soundings to the well. As for me, I just happened to be in Grenada where my only care was to float off my post-war ennui upon the required number of swizzles. Beyond the open casement, the empty *carénage* lay gleaming in the heat of mid-afternoon. Across the harbor, where the water shoaled emerald and tawny and then coral white, the opposite hills rose stilly green to the encircling ridges that all but touched the slow moving trade clouds. It was an afternoon when you play in fancy with suddenly acquired wealth, or recall the time, unreal almost as your day dream, when your favorite uncle presented you with a marvelous tortoise-cheeked knife that had four blades, scissors, tweezers, a tiny awl and a gimlet, and something which pulled out and looked like a toothpick but no one knew what it was for, and now you wonder what ever became of the knife — and the uncle, too, for that matter. Roving catspaws pounced upon the *carénage* water and deployed in little bombs of ripples. On the quay below, quite out of sight, a metallic-throated *charbonnière* hailed another of her kind and received distant answer. A couple of green swizzles, ordered so long ago that we had quite forgotten them, were skidded on a battered tray upon the table between us. We were making up our minds to reach for them when a growing triangle of white cut into our square of window, detached itself from the casing, and became a jib. Then followed a jumbo, a fores'l, and — we were not sitting bolt upright — the mainsail of a largish schooner yacht.

About her deck stood the crew, ready to let run and let go, while at the wheel was her owner, Sir John Codliver, of the Newfoundland Codlivers, as we were to learn. Somewhat apart stood a woman in white. I found something curiously familiar in her assured attitude of critical waiting.

Despite her sturdy English build, the yacht seemed toy-like from our second-floor vantage whence we caught every gleam of her brasswork, from the natty tureen-shaped binnacle and tiny saluting cannon on her quarter deck, to the sun bright of her polished capstan. Verily, Collie's eyes popped out like those of a butter-and-egg man upon his first glimpse of a Peacock Alley beauty. The schooner jibed over disdainfully and cast her anchor at the far side of the fairway.

Now if any one had told Collie that in three short weeks he would be standing in the place of Sir John and with that same woman hard by on the quarter deck, I haven't the slightest doubt that he would have sunk his quid in sheer astonishment, while Lill, for it was she of the afterguard, would have heaved her newly acquired Parisian shrug as though to say "W'at? Me take up wiz zat *mufle* of a trader?"

Yet all this came about somewhat in the following manner. First, Sir John considerately fell, or stepped, off the quayside of a moonless night and either couldn't, or wouldn't, come up. I am inclined to the latter belief, for though he appeared to be a cheery enough soul during our brief acquaintance with him at the club, it seems that his erewhile genial nature shrank even from telegraphic converse with those whose social facets were clouded by financial dictates. Thus, in due course, his creditors cabled the *Tranquebar* for sale, where and as she was, and Collie snapped her up at his own price.

As for Lill — née Kelly, of the Kankakee Kellys, but more latterly Madame Quellay — being down to hardpan but for a caché of diamonds cemented variously in her capacious molars which she would have no "nigger tooth plumbers foolin' with," and there being scant other choice, she elected to remain aboard the yacht till the new owner should fetch in at one of the larger ports. Habana, for instance.

Well, Collie rarely touched at Habana, but there was Port-of-Spain. Would that do?

I will say that I was mildly surprised that Collie even put the question, for he was nothing of a ladies' man and apt to be rather short, more through shyness than a lack of manners, when he was forced to have any commerce with the other sex. But as we stood there in the paneled lobby of the *Tranquebar* it seemed a pity, almost, that the pink and damask little boudoir stateroom that gave to port should be so shortly divorced of its fair occupant. To me, there was something of the pathetic in its immaculate order as I glanced past the over-mature, half-defiant, half-suppliant figure that confronted us in the doorway. Her defiance was a measure of self-protection against Collie, though she need not have employed it, while her suppliance was directed toward me, in the mere flick of an eyelid, lest I betray what I might know of her less glamorous past. A past that had to do with frowsy lake schooners and their soggy skippers.

"I suppose I might as well put *her* down as part of the inventory," grumbled Collie as we rowed ashore again, "and *you're* going mate with me, at least till I get rid of *her*."

Well, I didn't mind, and I was tempted to say that he would have come nearer the mark were she entered on the papers as a member of the ship's company, but I

held my peace, remarking that now the trades were setting in again, we ought to make some fine runs.

The English crew having been paid off by the agent and shipped home D.B.S., we took on four natives, together with Collie's old cook, sent down the topmasts and hoisted our jib for Trinidad. Here we sold her ballast, replacing it with cement and punchings, and shortened her rig. Then we built a couple of dodge-houses on either side of the quarter deck and gutted her from the lobby at the foot of the after companion right forward to the crew's quarters. All between was sheathed up and bulkheaded off for carrying space, while her main skylight was enlarged for a cargo hatch. What with the price he got for her lead and the rosewood and birch paneling, not to mention the divans and the rest of her below-decks frummery, together with the dinky saluting cannon, all of which went to a Port-of-Spain merchant who was building a retreat on one of the Bocas, Collie had nearly recovered his outlay. And now he had a lovely little trader again, mostly Rangoon teak and bronze fastenings, and she was still a smart sailer that he could drive to his heart's content.

And he also had Lill. To begin with, it was still pretty hot ashore, being at the tail end of the hurricane season, and as we lay well out in the harbor where every little breeze was cool, while we gallied the *Tranquebar* and lightered her ballast, it seemed rather ungallant to put our passenger on the beach. In fact, I don't believe the thought even entered Collie's mind, so engrossed was he in changing over his new schooner. In her turn, Lill made herself so useful that we had come to feel that she was as much a part of the ship as we were. Even before we left Grenada she began to tune up the cook till he was taut as a fiddle string and as Collie said, "Man, the meals that dinge is bringing aft are clean spoiling me for the slum we'll be getting when the Madame leaves this vessel!" Well, they *were* good, and inside of a week we began to send our pants ashore for the tailor to ease out the after seams a bit. We were in Trinidad by this time and here Lill became a regular ship's husband, jealous of everything the carpenters did and guarding the schooner's topsides as though she were still a yacht. She made the crew wash down the decks morning and night, like a bunch of Long Island squareheads, and whenever the work ran slack she'd pipe the sweepers by blowing through her fingers and wiggling 'em in her cheeks, so that it sounded like a real bosun's whistle.

But at last we had to haul in to one of the jetties to shorten our sticks and pour in cement and punchings, and that was no place for any lady who cared to keep her complexion from dripping off the end of her chin. So she packed her duds and drove off in a gharry to the Ice House, Collie having loaned her some money till she could find a white dentist. We should like to have gone ashore too, but Collie figured that we'd get out of that hell hole all the sooner if we stuck to the vessel. About the second meal, the cook began to ease off into his greasy ways and we began to miss Lill. Darn the old crook, anyway. You know what I mean. It was not that she was so old nor so hard to look at, either, and when you got used to her Boule-Miche-to-Paris make-up, there was something mighty comfortable about her. Being in *loco parentis* to her past, as you might say, I said nothing, though I could see that Collie was doing a bit of thinking on his own hook.

It was our first afternoon on the old anchorage again, topmasts fidded and all taut, when the *Guiana* stood in from the Bocas and blew her whistle. Collie was below at the time, but that blast fetched him on deck like a Jack-out-of-the-box and directing one look at the liner, he said, "B'jakes! Do you think she's sold any of her diamonds yet?"

Before I had a chance to tell him what I *did* think, he spilled himself into a bumboat that was coming out for a bit of steamer trade and ordered the zambo to head back for the beach.

Now it wasn't for the sake of the few pounds he had loaned her that Collie was in such a hurry, so I reached into my dodge-house for a bottle of Old Rosalie and tipped it up for good luck.

Along toward sunset I made out that same bumboat coming back again and there was Lill, the stylish stout, sitting in the stern sheets with Collie. Her trunk was upended in the bow. As they ranged alongside, Collie shoved back his helmet the way he does when he's made a good trade, and said, "Would you mind giving Mrs. Flower a hand-up?"

So that's how Collie got Lill, and as soon as I had offered my congratulations, I drew the groom to one side and whispered, "Did she?"

"By the Gee! and I forgot to ask her *that*," he answered, "but then I never was one to look a bride in the mouth!"

"If it's the diamonds you mean," put in Lill, turning to her spouse as though she were telling him that there were plenty of extra shirts in the top drawer of the bureau in the upper hall, "my dowry's still in my back teeth and you can break me up, dearie, if I go before you do. There's enough glass in them grinders to keep you in rum for quite a while."

Naturally, I was for leaving the *Tranquebar*, having served my purpose of keeping scandal from her decks, but neither Collie nor Lill would hear of it, arguing that while I was at loose ends anyway, who could be looser than a second mate on a small trader? Meaning that Lill was now first mate and so there wouldn't be much for me to do, anyway. Nothing much, I thought, but to be tactful.

We celebrated the wedding aboard the schooner, that night, and Lill proved the real mate she was by snapping the cook right back into line, the way she had him before she'd gone ashore. Aft, we drank our healths all hands 'round and seven ways for Sunday with Sir John's good champagne which Lill had hidden in the sail locker before the executor's agent came aboard to appraise the vessel in Grenada. She explained that she had done it solely in deference to Sir John's aversion to his creditors, though I rather suspect that she may have begun to set her cap for Collie from the very first. The crew had double lots of raffia and everything was merry as a wedding bell till —

Collie announced that we were going to up anchor in the morning for Curaçao.

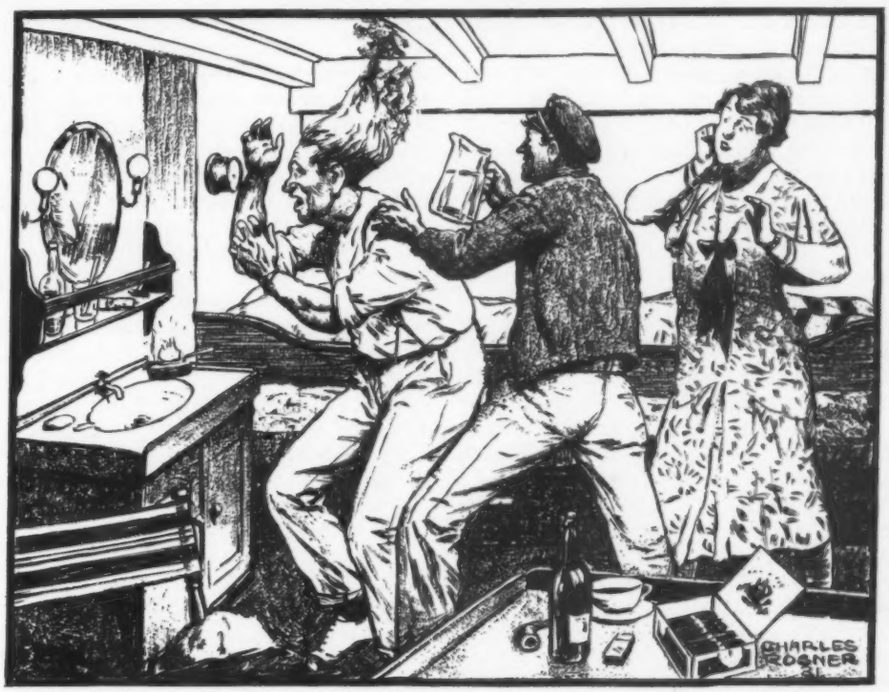
"But, dearie," interposed Lill, "I want you to go ashore and get a haircut in the morning, *then* we can sail!"

"The hell you say," answered Collie who had been married before and knew enough to get the weather gauge from the start, "my hair stays long and you'll like it that way."

"Just as you say," replied Lill, slowly filling our glasses again, for she too had been married before and I could see that here was a proper fillip to keep monotony off the decks of the *Tranquebar* for some time to come. In fact, it clinched my decision to remain aboard — till the end of the yarn, at least.

You see, Collie had two peculiarities of which he was rather sensitive, the first being a pair of stuns'l ears that stood firmly out from the sides of his head like wind scoops from a steamer's ports. And while they were con-

venient as a means of locating the merest susurration of breakers on a distant reef, they had a way of burring in the wind unless ample tresses were grown around them to dampen the vibrations. Collie's second peculiarity, of which he was even more sensitive than the first, was the way in which his sconce retreated sharply inwards as though it were doing its best to disown its aural appendages. The result of this cranial conformation was a head that would accommodate any hat from a five to a seven — until the wind blew. And no hat was made that would go over those ears without coming down on the tip of Collie's nose, and then he could neither see nor hear, which are two rather necessary requirements even for the skipper of a trading schooner. So Collie went bareheaded at sea and let his hair grow to keep off the sun and to stop his ears from burning, as I have said before. And I won't say that he was so outlandish, though Lill averred that he looked like a Clark Street bum who didn't have the price of a haircut. She hadn't seen him when his head *was* shaven, after a block had fallen on it and tried to reshape it into something more like other people's top-pieces. I might have told her, but you know how a woman is when she wants to make her husband look like any other tread-nimble, and besides she might have taken offense had I told her that she'd only be making Collie look like a two-handled something or other.



"Sugar will burn and so will hair, and when you combine the two you have something that is about as inflammable as a celluloid collar"

Secretly, I believe Lill was not a little set up from the way in which Collie had fetched to windward of her at the very beginning, and our run down-hill to Curaçao was like the start of a real yachting honeymoon. If you can picture the bride as bossing the cook out of one side of her mouth, and ordering the crew to make sail and shorten chain out of the other. But when she was not ship-wife and mate there were her softer moments and they were all for the skipper. Furtive spoonings, reflected on the binnacle from behind my back when the watch was forrad and I was at the wheel, revealed anamorphosic caricatures that bulged the bridal couple into Flemish representations of Samson and Delilah in which Lill, to complete the biblical simile *did* toy with her Samson's locks. I believe that Collie was a bit suspicious at first but soon he seemed to like it — Lord, how his distorted visage smirked from the bulging belly of that polished binnacle hood! — and had I not known Lill of old, I would have said that she had taken a genuine fancy to the long black plumage of her man. As a matter of fact, however, it was on this very first run before the wind that birth was given to her ultimate connivings. And though she may have tried to conceal it, there crept into her face a look of expectant triumph.

While ashore at Willemstad, I happened into one of the larger stores as a clerk was wrapping up a pair of longish shears. The buyer was Lill, but she was so taken up with making place for it in her bag, that I slipped out, unseen, to go on my way musing. Had she any idea of gentling the skipper into her tonsorial notions she was off on the wrong foot, for Collie was not one to be led. Well, except into marriage. I was rather inclined toward the belief that surprise would be her strategy.

From Curaçao, with half a load of Schiedam's and Dutch trade goods, we hauled our wind for Saba. At first the breeze canted somewhat south of east, as it often does in these parts, so that we could make good our lay. But as we stretched across the eastern bight of the Caribbean the trade backed more and more till it blew almost end on and we had to beat, long legs to the norrad from sun-up to sun-down, and then over on the other tack through the night. Hour after hour, the *Tranquebar* turned to windward like the thoroughbred she was, and as the days went by (not so many of them, but a full week or so) Collie's hair grew longer and longer. He should have had it trimmed a bit at Port-of-Spain, but then he was so taken up with the schooner that it slipped his mind, and when Lill mentioned it on their wedding night I believe it was bravado rather than mere stubbornness that prompted him to try and find out just how long his hair *would* grow. At any rate, he neglected to visit the barber at Willemstad.

"He'll be sewing fringes on his pants, like Buffalo Bill, and shooting glass balls over the lee rail," ventured Lill as we were closing in on the northern islands.

"Maybe those galloons'll make his neck so hot when he goes ashore at Statia that he'll get old Heyliger to give 'em a bob," I suggested hopefully.

But old Heyliger was down with the fever and as soon as we had cleared the last case of gin out of our hold, Collie hoisted jib for St. Kitts, where we took on a gang of laborers for Macoris. Now there is a good barber in Basse Terre, or there *was* till he cut the throat of a man he didn't fancy and skipped off in a dugout for Venezuela, but Collie avoided him just as he had been shunning all the barbers right around from Trinidad. To tell the truth, my own hair was beginning to curl at

the ends, but I figured that if I had it cut, Lill might hold me up for a good example. And I was keeping to looard of that squabble, even if I *did* have to let my hair grow.

So we streamed off, as you might say, on another run down-wind — the *only* course when you're transporting a crowd of dinges — and once more I could see that Lill was turning over whatever she had in mind when the wind was aft. What should have given me something of a clew was that on approaching our first nightfall at sea, it was discovered that the founts in both binnacle lamps were gone. Collie managed to remedy their loss, however, by lashing in place our only hand lantern and hooding it over with an empty bitters box. Then Lill managed to fetch against it in a roll and I had to chuck the contraption overboard before it set fire to the deck. That was very thefty on the part of Lill, I thought, for it was only a little roll and she wears a generous pair of fresh water feet, so now I had another mark against her in my little book.

There was no moon and the sky had been overcast, but now the stars came out and we steered by them, checking the compass every once in a while by blowing our cigars jamb close to the glass. That is, Collie and I steered her, heel and toe right through till sun-up, as we daren't trust any of the crew to remember which star was the right one, and Lill didn't smoke cigars. Needless to say, we made a thorough search from stem to lobby, but there was no trace of the missing founts.

After another night of spelling each other and smoking Holland ropes, our passengers were debarked under Collie's most fervent blessings, for he was convinced that among them was the thief. That was Lill's premier audition, as you might call it, of the skipper's *flux de bouche*, and she stood stock stiff the while as though lightning were playing all about the *Tranquebar's* after deck and a bolt might fell her at any instant. It should have warned her to stretch away on another tack.

From Macoris we stood down the coast by daylight to San Domingo City, where Collie wangled a pair of new binnacle founts from the small boat stores of an American cruiser. With a fardage of rock salt under an overlay of case beer from the brewery hard by the town, we then laid our course with the wind abeam, for Grenada.

The weather had remained spang clear, too clear for that time of the year, and the barometer was slowly climbing. To be sure, it does not go very high in these latitudes, but the few hundredths it had gained were an indication that a "norther" was herming somewhere behind us. Anxious to gain as much southing as possible, Collie cracked on with both tops'ls and the lee channels sending up fountains of spray. By forenoon, however, the clouds over the mountains astern grew dark and their ponderous crests were blown out over the foreshore by the higher current that soon would be gaining mastery of the trade. Though our wind was still holding true, our tops'ls were clewed up and sent down, and a precautionary reef was turned in the mainsail. Presently the trade fell to a mere breeze that chopped around full eight points and blew delightfully cool. It seemed ridiculous to turn in our second reef, but even while we did so the wind came harder and over all the northwest quadrant the sky took on the ragged black-brown appearance of a real Chocolate Gale as it is called in these parts. As the day advanced to mid-afternoon, weirdly grown into a yellow twilight strangely alien to the tropics, we were running before it under double-reefed fores'l, and thankful to carry that. From cobbling lippers marching athwart the regular valleys of the trades, the new seas had grown with surprising rapidity, steep and mountainous like those of The Lakes, and into Lill's eyes there came a gleam that was reminiscent, I thought, of the winter seas that used to hiss their spite upon the little Christmas-tree schooners out of Mantisque.

"A damn good thing we got those binnacle lights fixed," Collie roared in my ear, "I'd hate to bring her to now, and anyway we can run out this larrup in another twelve hours. Scoots like a barracuda after spigplums, don't she?"

She did scoot like a barracuda, and how could the *Tranquebar* help it, what with her narrow hips and long straight keel; in fact, she carried so much way that should she take one long sheer I believe the next sea would clear her decks from wale to wale. It would be fitting to make sure that our new lights were in proper order well before night clamped down on the mocha afternoon. So I unshipped the lamps from the hood and carried them below into the lobby. They burned, but with sickly yellow flames that flickered and died out presently, as I tried to adjust the wicks. As the founts seemed full up, I tried again and this time it was the flame of the match that went out as I touched it to the wicks. Damn funny kerosene the cook had bought in San Domingo, I thought, for I had seen him go ashore to replenish our empty can. Then I felt of the wicks and sniffed at them and when I put my fingers to my tongue, they tasted salty! By now Collie was thumping on the deck with his heel.

"What's the matter?" he demanded, suspiciously.

"They won't burn," I answered, "I think they're filled with salt water."

"Then try the others, you looby," roared Collie, meaning what other lamps we had aboard ship. But there were only the running and anchor lights and they, too, were loggy. We emptied them all, put in new wicks and were about to refill the founts when we found that the can itself contained nothing but salt water. The only usable lights aboard ship — and they would be no good on deck — were a couple of dinky candle-lamps in the two staterooms, one of which was Collie's cabin where he had rigged the former captain's telltale over the head of the berth.

When Collie was informed of this turn, he became like a wild man, only instead of waving his arms in the air, he employed them more fully to the spokes of the wheel, and swore down gale. In another hour, our false twilight would deepen, almost instantly, into black night in which we were committed to running before that gale. Were the fores'l allowed to come over, it would be the last of the sail, and if we handed it ourselves those steep seas would be pooping us and there was no way by which we could lash the helmsman to the wheel, even if he did hold her on her course.

It was Lill who made the obvious suggestion.

"Why don't you steer by the back of your neck?" she screamed athwart the gale.

"With all this hair? You're crazy as a —"

"Then cut it," Lill screamed again, and by that I knew who was responsible for the missing founts and the salt water and no doubt the Chocolate Gale, to boot. Strange to say, Collie didn't seem to tumble; he only peered more intently into the belly of the fores'l and roared, "Not by a damn sight, not if I roll this vessel keel up, I won't!"

For the second time since I have known her, Lill seemed really upset. Knowing Collie even better, I was a bit worried myself, for he was a hellion when hard driven. Then I happened to remember a way I had of setting my hair when I was a boy and went to parties. In fact,

(*Continued on page 116*)

M. Rosenfeld

"Sazarac"

An 81-Foot Commuter-Cruiser Designed by J. H. Wells for George H. Townsend, of Greenwich

Intended primarily for use as a commuter, "Sazarac" is a doubly interesting craft in that she has facilities for extended cruising. The bridge deck is unusually large, and there are cockpits fore and aft. Two 500 h.p. Wintons give her a speed of 27 miles. Henry B. Nevins, Inc., were the builders

That Chicago Motor Boat Show

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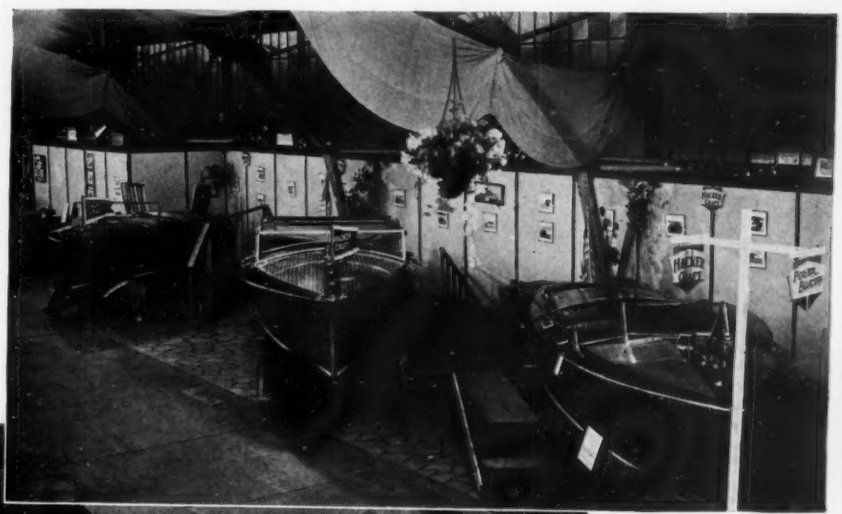
A Fine Fleet of Boats Attracts Large and Enthusiastic Crowds

IN THE year that has elapsed since the last motor boat show in the Windy City, the good people of Chicago, in spite of municipal elections and anti-racketeering crusades, have become boat-minded. That is, if one can judge from the interest displayed at the second motor boat show at the huge Navy Pier, held during the week of April 24th to May 2nd. Never has a larger or finer fleet of power boats been gathered together in the Middle West, and never before have as many people in Chicago looked them over, discussed them from every angle, and shown genuine interest in becoming proud owners.

The Navy Pier is an ideal place to stage such an exhibition as manager "Hub" Erickson put on. Several thousand feet in length, the twenty-six cruisers exhibited stretched for nearly half a mile, anchored bow to stern, with an aisle on both sides giving spectators an excellent opportunity to inspect the boats from every angle. On the outside of these aisles were the runabouts and smaller outboards, and an imposing array of accessory exhibits. The cruisers ranged in size from the 46-foot Burger double-cabin boat and the a.c.f. "40," down to the little Dunphy Pullman Cruiser for the man who must count the cost of enjoying health and pleasure on the water, be it fresh or salt. Runabouts and outboards — motors, from Diesels to midget outboards — accessories of every description — they were all there for the edification of expert and tyro alike. The facility with which boats were handled was demonstrated in startling fashion when the third of the Robinson Sea Gull cruisers, arriving late after a mad dash from Benton Harbor, was hoisted out of the water and placed in her allotted space in a shade under 35 minutes.

A craft which attracted large crowds of admiring onlookers was the 46-foot commuter built by the Great Lakes Boat Building Corporation for Philip K. Wrigley, of Chicago. Her bright mahogany hull was a beautiful piece of work, and her fittings and appointments were a delight to the eye. The Burger 46-footer was a craft of about the same size, but more of the cruiser type, with ample accommodations for eight people.



A trim line of Hackercraft glistened among one of the largest and finest fleet of power boats ever gathered together in the Middle West

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Dodge runabouts attracted wide attention from the large attendance of ever-enthusiastic showgoers

A column of cruisers which brought an answer to the wish of every cruiser enthusiast

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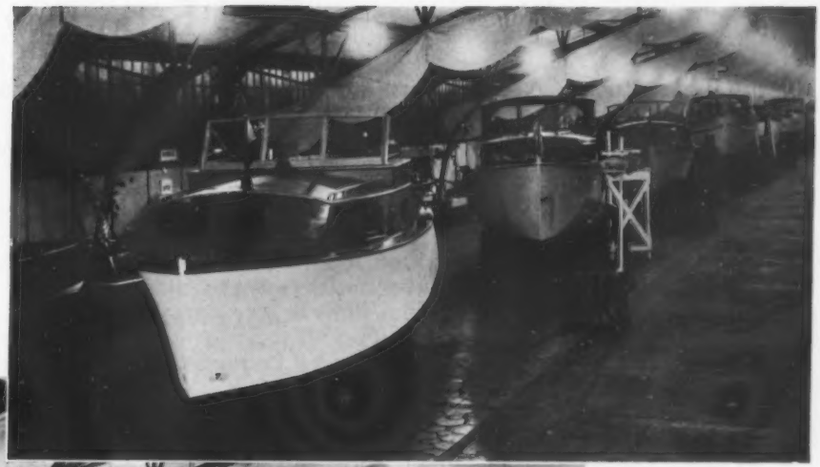
Express cruisers by Robinson and the Great Lakes Boatbuilding Corporation represented the last word in fast water transportation



Matthews showed an excellent 36-foot double-cabin model, while a.c.f. exhibited a 40-foot, double-cabin craft, a 39-foot express boat, and a 30-foot cabin cruiser. Chris-Craft was there with two cruisers and a full line of runabouts, and Dee Wite also showed two cruisers and several runabouts. Four Hackercraft gleamed and glistened in convincing fashion, two Richardson cruisers gave a fine idea of what North Tonawanda had to offer, and three Wheeler Playmates showed the latest developments in this popular line of sea skiff hulls. Gar Wood's latest creations in the runabout line made one long to be afloat and feel the thrill of dashing smoothly along with abundant power at the beck and call of the helmsman.

Among the motors were noted fine exhibits of Gray, Kermath and Universal, besides the numerous outboard models sponsored by Johnson, Caille, Outboard Motors Corporation, etc. And, of course, all kinds and descriptions of accessories. And Chicago's showgoers took it all in — and enjoyed the taking. The Chicago Motor Boat Show was a good one, viewed from every angle, and laid a firm foundation for the years to come.

The ever-popular Chris-Craft and Century boats. A great variety of power craft was included in the display which lined the long Navy Pier

Fuel Economy

How to Get More Miles Per Gallon From a Marine Engine With a Few Simple Appliances

By CARL L. WEAGANT, M.E.

A FRIEND of mine is getting his boat ready for the Bayside-Block Island and Huntington-Cornfield races this summer. All winter long he has been designing new sails and doping out countless ways to set and trim them. One day I asked him what he was going to do to her motor.

"Clean the carbon and grind the valves," he replied.

"Is that all?" I inquired.

"Well, what more can I do?"

There are equally as many adjustments and combinations of adjustments that can be tried with your motor as with your sails. Your motor is capable of giving considerably more miles per gallon and more power if it is given a little thought and attention. And there can be as much satisfaction in running the motor well, as in sailing the boat well. Your motor is like a poorly sailed boat — it goes, but inefficiently. When I had delivered this pronouncement my friend looked at me in disgust, as if to say, "And I thought you were a sailor." And then he said, "What do you mean by running your motor well?"

"Organizing the variables that control the operation of your motor."

"What variables?"

"Spark advance, engine temperature, gasoline, air, oil, speed, etc."

"How?"

"Well, I'll tell you what we did to *Carlsark's* engine before the 1928 Bayside Block Island race."

Of first importance was the measuring of performance as affected by the various adjustments to the motor. A reliable tachometer was installed and a glass tube holding a known quantity of gasoline was fitted so that it could be drained into the carburetor. The tube measured fuel consumption accurately, and acted as a fuel gage at the same time.

A pointer or indicator was placed on the timing head, and measured degrees of spark advance on a graduated dial placed alongside it. With it we determined what angle of advance gave the highest tachometer reading. Increase of r.p.m., although not a direct measure of power increase, can be considered indicative of better performance. Formerly, we worked our spark as you probably do — advanced it all the way when the throttle was opened. We found that the spark had to be varied constantly with changes of speed or temperature of the motor.

A dashboard thermometer was set up to determine the temperature of outgoing cooling water. This temperature was controlled (by bypassing intake water.) The bypass valve was connected to a T placed in the intake water line on the discharge side of pump.

There are definite reasons why a motor runs best at certain temperatures.

In general, marine motors are run too cold. A cool motor means cool oil, and cool oil increases friction, which absorbs useful power. But more detrimental is condensation of the gasoline mixture along the walls of the intake manifold. Gasoline mixture passing through the manifold into the cylinders, on coming into contact with a cool surface, condenses — becomes raw gas. It is no longer mixed in correct proportion with air and burns inefficiently in the cylinders. Briefly, a rich mixture is created. On the other hand, if the motor is too hot the gasoline mixture will be vaporized, which again is undesirable. The gasoline should remain atomized as it comes from the carburetor. Also, a hot motor increases the velocity of flame propagation in combustion, and it is this flame speed which causes knocking. Ethyl gasoline is nothing more than a gasoline doped with a chemical which decreases the flame speed. As we all know, high compression increases the heat of the combustion chamber; so does a red hot carbon deposit, and the increase in heat of the chamber increases the flame speed. That is why ethyl gasoline must be used in high compression heads and why it stops the knock in carbon filled motors.

Somewhere between the cold and hot extremes in a motor is the optimum temperature and it can readily be found merely by opening and closing the bypass valve until you find what temperature gives the highest r. p. m. This optimum temperature may vary with different motor speeds. That is for you to determine.

Engineers have recognized the importance of heat control and lately marine engines have been equipped with thermostatic valves which automatically regulate the amount of cooling water entering the engine and therefore maintain the cylinders at the optimum temperature.

Another pointer was fitted to the needle valve on the carburetor. The pointer arched horizontally across a graduated scale. The same was done to the throttle. An air intake petcock was inserted in the intake manifold and then we tackled the interesting problem of carburetion.

Carburetion is the proper mixing of air and gasoline. For every pound of gasoline delivered to the cylinder 14.75 pounds of air should be delivered thoroughly atomized with the gasoline. If there is more than one part of gasoline to the 14.75 parts of air, raw gasoline is wasted. Marine motors are usually operated in this inefficient way because excess gas is needed for starting. On the other hand, if there is too much air, power is lost because the air occupies useful space in the cylinder and a certain amount of energy is absorbed pumping it in and out. This mixture ratio is dictated by the chemical combination of gasoline — carbon and hydrogen — and air-oxygen. These elements unite in definite chemical proportions in the same manner as two parts of hydrogen unite with one part of oxygen to form H_2O — water. Any excess of either element only stands in the way of complete and perfect combustion.

The carburetor, therefore, should be designed to mix one pound of gasoline with 14.75 pounds of air if maximum fuel economy is desired. But every motor speed requires a different setting of the carburetor or a differently designed carburetor. In order to maintain this ratio automatically, an idling adjustment is provided for starting speeds and an air inlet valve for higher speeds. However, these adjustments cannot regulate the mixture perfectly because of variation in humidity, quality of gasoline, temperature, etc. But if we introduce an air petcock, a trick which is as old as the Ford motor, the mixture ratio can be properly regulated. The

petcock, or valve, should be tapped into the intake manifold somewhere above the throttle, and it should be possible to regulate the amount of air admitted with a valve. With this installation and the graduated needle valve settings, you can make economy tests with the fuel gage and determine exactly how many turns the petcock valve should be opened and where the needle valve should be set for various speeds. In short, the air petcock makes it possible to supply sufficient air for complete combustion at all times where economy is desired.

However, when maximum power is desired, fuel economy must be forgotten, for you will find that a slight excess of gasoline increases power. More than one pound of gasoline for the 14.75 pounds of air is needed.

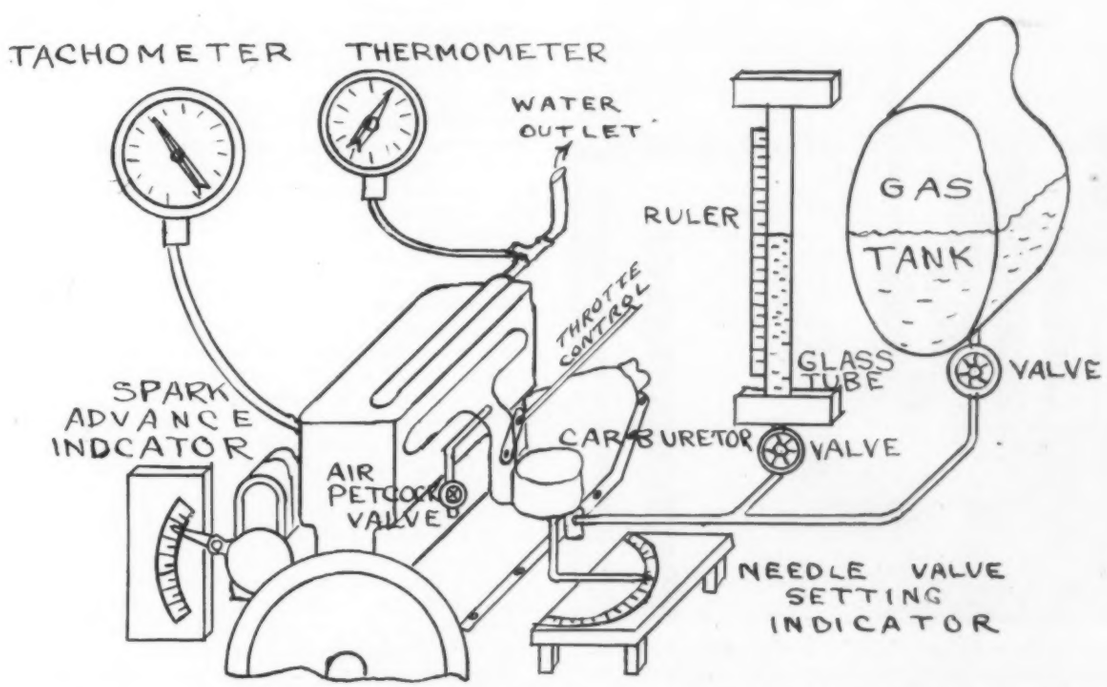
With the gasoline properly mixed and on its way to the cylinders, we encounter the problem of distribution. Distribution of fuel in the manifold must be such that all the cylinders will receive a good and equal mixture of atomized gasoline. The walls of the manifold must be shaped to permit even flow. If there are irregularities or pockets in the manifold, the atomized gasoline will pile up in them and condense into raw gas. Then globules of gasoline will accumulate, eventually to be drawn into the cylinder as a rich mixture, with loss in economy. This same sort of condensation is caused by a cold manifold or cold spots in the manifold and, therefore, the problem of engine temperature arises again. While you cannot change the design of the manifold, you can regulate the engine temperature with the intake valve. Recently, advertisers have been writing about dry and wet gas. This condensation, in their words, is wet gas. Perfectly atomized gas is apparently dry gas.

The down-draft carburetor is the result of this problem of distribution. It has made possible more perfect distribution because of the fact that a down-flow of atomized gas is less likely to build up in pockets to form raw gasoline. It also permits of more perfect mixture ratios in a manner too complex to discuss here.

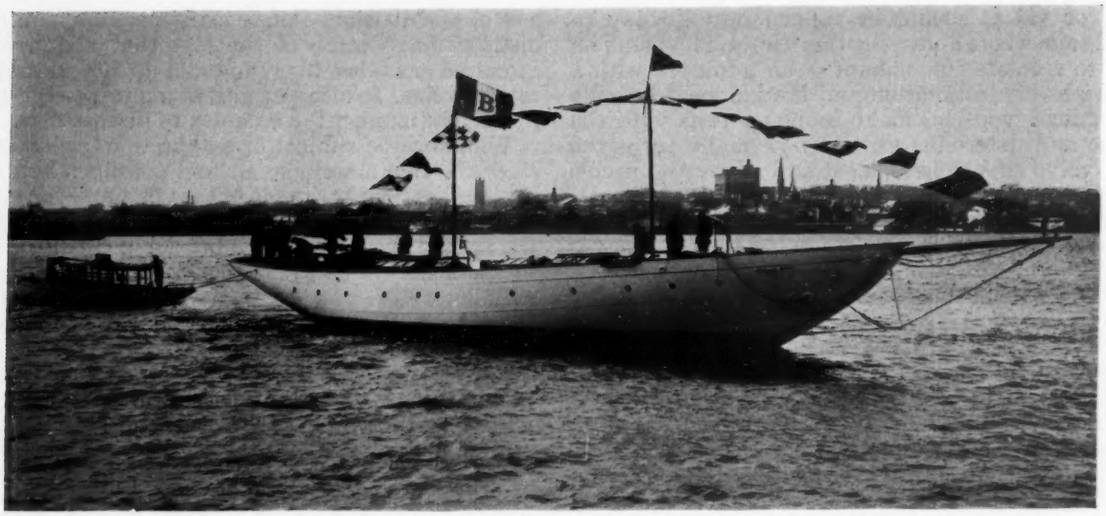
While on the subject of carburetion, we should consider the raw materials, air and gasoline. You may be particular about the grade of gas you use — anyway you should be, because good gasoline will give you more of the needed chemicals of combustion per gallon and none of the acids which eventually corrode the pistons and cylinder walls — but what about the air? You use fourteen times as much air as gas but, very likely, you do not consider its quality. The air in your engine room is usually hotter than the air on deck. Cool air will make a motor run better because it is more dense, and being more dense it supplies more oxygen to the cylinder per stroke than warmer air. The combustion chamber therefore receives a more concentrated charge.

You know your motor runs better on foggy or damp days. The reason, in part, is because the air is more dense. Therefore, it will help your fuel economy if you supply fresh, cool air to your motor by ventilating the engine room well.

Proper spark advance, correct engine temperature, perfect mixing of gasoline and air seem, in themselves, details which affect the motor only slightly, but taken together they will make a marked difference in economy and power output. And the best way to find out about them is to equip your motor with measuring devices as shown in the sketch, gather data from test runs, and figure out the facts. They can help to win the race and at the same time you will gain the satisfaction of running your motor well.



Schematic diagram (not to scale) showing measuring and metering devices which can be readily fitted to the average marine engine. A steam boiler gage will serve for the gasoline metering tube. The rule alongside the tube can be graduated to give the number of gallons of fuel in the tank. To make fuel consumption test, shut off valve at gas tank and operate the motor on the gasoline in the tube. By determining the volume of the tube the amount of gasoline burned can be computed



One of the early launchings of the season was that of "Puritan," a 103-foot auxiliary schooner owned by Edward W. Brown, of New York. She is from designs by John G. Alden, and was built by the Electric Boat Works. A 150 h.p. Winton Diesel furnishes the power

The Month in Yachting

Eventful Season Forecast for Lake Michigan

THERE is plenty of canvas being spread to the breezes this summer on Lake Michigan. In fact, yachtsmen there are having more action than usual during the 1931 season. The racing schedules of the Lake Michigan Yachting Association and the leading yacht clubs are most elaborate and in addition new life has come to certain members of the "rocking chair fleet," as evidenced by the many additions to the class of large auxiliary schooners in the Chicago district. Recent launchings of several large high-powered motor craft assures sport to a larger group of fanatics who simply can't resist the action of water on hull as well as those who like the effect of wind on sails.

Johnston de Forest's Eight-Metre "Priscilla" taking the water. "Priscilla" has been shipped to Scotland where she will compete in the series for the Seawanhaka Cup

As for the enthusiasts who like to take their sport in racing yachts, there is action aplenty in the fine fleet of "R" boats of the Chicago Yacht Club. Charley Wiman has put his *Alert IV* in commission with a new mast necessitated by her recent dismasting in a series of races on the West Coast which *Alert* won for the C. Y. C., despite the fact that the chart of the last race shows "D. N. F." beside her name. Charles Francis Adams' former *Gossoon*, of Marblehead, is a member of this "R" fleet, along with Addison Hanan's *Ariel; Atalanta*, former *Gypsy; Calypso*, *Nancy*, *Mitzi*, *Jonnie*, and the new *Varya*.

Last year *Jonnie*, owned by Giaver and Masse, won the season championship in the class, while *Ariel*, owned by Sheridan and Vail, won the Lipton Series. *Atalanta*, representing the L. M. Y. A., was winner of the Great Lakes championship last fall. Preliminary skirmishes indicate that another season of close competition and finishes without open water between boats is in progress, and honors may again be evenly divided.

The Columbia Yacht Club expects to have more than the sixty boats of last year in the annual Chicago to Michigan City race, always one of the features of the season. This year's race is scheduled for June 20th.

As large boats are more suitable to the heavy winds and hard chop of Lake Michigan, it is appropriate that a live class of big schooners should be used to the delight of many an old skipper from the ranks of the Universals and fast dying Seawanhakas.

The power boat squadron has been augmented this spring by the addition of several powerful boats designed and built out West. The *Wasp*, a handsome express cruiser, owned by Mr. Philip K. Wrigley, was one of the big attractions at the recent Second Annual Chicago National Boat Show held on the Navy Pier. The launching early in May of a palatial 148-foot yacht at Bath, Maine, for Mr. Charles H. Thorne, will increase the number of big cruisers in Chicago's North Harbor. Mr. Sterling Morton recently launched from a Chicago yard an 89-foot auxiliary schooner, *Freedom*, which will be seen in Cape Cod waters this season. Additions to the schooner fleet have been made by Clark Wright and Otto Schoenwerck, and it is estimated that recent launchings and new purchases will bring the fleet of new schooners to about twenty.

The Chicago Yacht Club expects to begin construction in the near future of its new $3,000,000 home at the foot of Monroe Street, in Chicago Harbor. This handsome building will be the center of much activity during the World's Fair.

The Lake Michigan Yachting Association has arranged a long schedule of races for the summer. This schedule may be obtained from Fred Porter, secretary of the association.

DOUGLAS K. PORTEOUS

A new Diesel for the Lake Michigan fleet. "Halonia," a 148-footer built at the Bath Iron Works for Charles H. Thorne, of Chicago, from designs by Gielow. She is powered with a pair of 400 h.p. Cooper-Bessemer Diesels

The Eight-Metres on Lake Ontario

THESE new Eight-Metres have their anchors down in Lake Ontario, and in good holding ground, too. Five are now there, all built for the Canada's Cup last year. Rochester has the Stephens-designed *Conewago* and the Paine *Cayuga*, and has parted only temporarily with *Thisbe*, the Crane-designed winner of the cup. *Thisbe* is away under charter as a trial horse for *Priscilla III* before her quest for the Seawanhaka Cup. Toronto has *Quest*, by Fife, *Norseman*, by Roué, and *Vision* by Nicholson. Before the end of this season Ontario "Eights" may be as numerous as their metres, possibly more so.

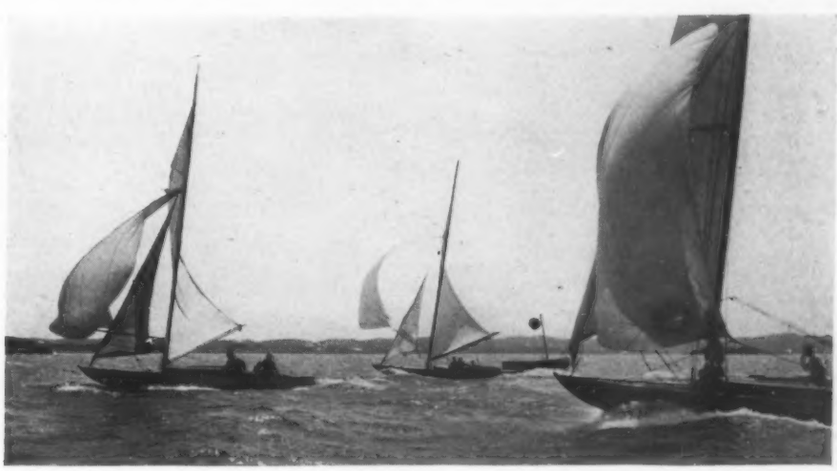
Rochester has again been challenged by the Royal Canadian Yacht Club for the Canada's Cup. The challengers, after thrice trying in classes selected by agreement, have now the right to stipulate the class. Canadians have for some time wanted Twelve-Metres or "Tens" for Lake Ontario. The Rochester club has felt that "Eights" were its limit. In naming this class without attempting to exercise its privilege of demanding a larger class, the R. C. Y. C. has given an exhibition of good will and sportsmanship which has received cordial acknowledgment.

Strenuous efforts are being made to have new Eight-Metres built this year, in time for development for the Canada's Cup race in 1932. The Canada's Cup syndicate which built three Toronto aspirants last year has already commenced a campaign for at least two new yachts. Norman Gooderham, new Vice-Commodore of the R. C. Y. C., who sailed the challenger last year, may build an "Eight" on his own for the coming contest. C. O. Stillman, recently elected commodore, may do likewise.

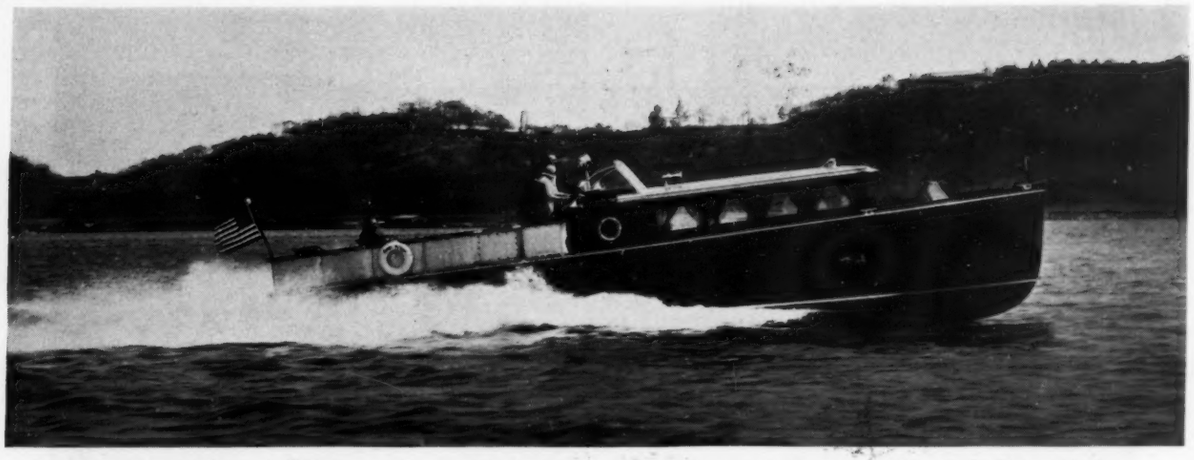
Some urge that all Canadian aspirants be of Canadian design. This is supported by the excellent showing of *Norseman*, designed by W. J. Roué, and by the performance of the "R's" *Nayada* and *Eleanor*, successive winners of the Great Lakes championship, both designed by T. B. F. Benson. A designing board, including Messrs. Benson and Roué, G. Herrick Duggan, brilliant Seawanhaka Cup designer, and Aemilius Jarvis, Canada's Cup winner, has been suggested to provide all-Canadian material. The R. C. Y. C. has an excellent building shop, which produced *Norseman*, and Norman Gooderham has another good plant in Oakville. Further challengers from Fife, Nicholson, Mylne, or Glenn-Coats in Britain are, however, still probable. Rochester's plans are as yet tentative, but one or more "Eights" will be bought or built, to take part in the eliminations for the defence.

Canadians are much impressed with the possibilities of *Vision* in such going as is likely at Los Angeles for the Olympics next year, and *Vision* or one of the new yachts may be selected to represent Canada in that contest. Canada will be there. Selection of the champions for the Olympics and the Canada's Cup, and a return visit of Eastern Yacht Club crews to the Royal Canadians' waters, in which the Eight-Metres will be used in a friendship match, promises a brisk season this year for Lake Ontario. In addition, there will be the Lake Sailing Skiff Association regatta at Rochester and the Lake Yacht Racing Association meet at Henderson Harbor — where, for the first time in the history of the association, prize money will be eliminated.

C. H. J. SNIDER



The finish of the first race in the team match between the Sound Interclubs and the Bermuda one-designs, sailed in Bermuda during April. The Sound sailors carried off the honors with 51 points over the Bermudians' 43¾



Speeding along at 38 m.p.h. "Sheboygan," one of the 40-foot Gar Wood Express Cruisers, owned by J. L. Reiss. She has two 200 h.p. Scripps motors

Large Fleet for Cape May Race

SCHEDULED for the run of 360 miles between New London and Cape May in the race starting on June 20th is a fleet of 46 yachts. Many veterans of ocean races are represented in the list and there are a number of names new this year. The Corinthian Yacht Club, of Philadelphia, is sponsoring this biennial event, which is the third of its kind.

The list of entries follows:

CLASS A

Yacht	*Owner*	*Club*
Caroline	Young, Roger	
Cephito	Bowes, Thomas D.	Corinthian Y. C. of Phila.
Daphne	Williams, R. H.	
Dauntless	Merwin, H. B.	Black Rock Y. C.
Gray Goose	Pitney, Shelton	Edgartown Y. C.
Grenadier	Morss, Henry A., Jr.	Eastern Y. C.
High Tide	Miller, J. Rulon, Jr.	Gibson Island Y. C.
Ladrone	Pulver, George M.	Gibson Island Y. C.
Lady Susan	Whiting, George A.	Maryland Y. C.
Lion's Whelp	Sprague, Shaw	Eastern Y. C.
Malabar VIII	Downs, W. Findlay	Corinthian Y. C. of Phila.
Malabar X	Alden, John G.	Eastern Y. C.
Marita	Haines, Franklin M.	American Y. C.
Mistress	Roosevelt, G. E.	Seawanhaka Corinthian Y. C.
Mohawk	Baker, A. T.	Edgartown, Y. C.
Monomoy	Lockhart, Henry	
Nor'Easter	Kent, Atwater, Jr.	Corinthian Y. C. of Phila.
Poseidon	Bullard, E. P.	Black Rock Y. C.
Quicksilver II	Peirce, A. E.	
Quita	Woodward, George, Jr.	Corinthian Y. C.
Sayonara	West, Vernon F.	Portland Y. C.
Sea Witch	Parsons, Edmund S.	Warwick Country Club
Shellback	Crabbe, Edward	Cruising Club
Teal	Biglow, R. Graham	Cruising Club
Teragram	Mixter, George W.	New York Y. C. — Cruising Club
Tigress	Drake, George B.	
Water Gypsy	McMillan, William	Gibson Island Y. C.
Yankee Girl II	Warren, G. W.	Cruising Club

CLASS B

Azor	Marsland, C. A.	
Black Dragon	Waddell, Morton	U. S. Power Squadrons
Duckling	Atwater, Charles W.	Cruising Club of America
Janet	Hamilton, W. H.	
Malay	Ferris, R. W.	
Mischief	Brewster, H. H.	Larchmont
Nahma	Sharp, H. Rodney, Jr.	
(New-45' Cutter)	Brooks, L. M.	
Rose of Sharon	Donaldson, E. Boyd	
Seaward	Andrews, James M.	Nantucket Y. C.
Seven Seas	Dellenbaugh, F. S., Jr.	Eastern Y. C.
Tinawire	Lockwood, Luke B.	
Vagabond	Drisler, W. Arthur	American Y. C.
Windrush	Wilford, J. P.	Penn Athletic Club

CLASS C

Aeolus	Ward, John M.	

CLASS D

Rugosa II	Grinnell, Russell	New York Y. C.
Sachem	Metcalf, R. B.	New York Y. C.
Sayonara	Sartorius, I. A.	Sea Horse Y. C.

Off to a good start in the Lipton Trophy Race held by the Angler's Club during the Palm Beach Regatta, in March. The winner turned up in Willis Overton

A Proposed International Junior Star Class

A PROPOSAL has been made by Lawrence Bainbridge to form a junior division of the I. S. C. Y. R. A., the members to sail Stars rigged with an official junior rig, and when they become old enough, graduate into the senior association where, with new rigs, their boats would be regulation Stars.

All over the United States, Mr. Bainbridge says, there are youngsters anywhere from eight to thirteen or fourteen years old who want to sail boats, many of whom have bought, sold and experimented with all sort of boats of unorganized classes. Bainbridge would interest the parents of these youngsters in inactive Stars of the old rig. By shortening the boom and setting the headstay further aft from the stem than in the new rig, so that the boat would balance without changing the position of the fin, and putting on a permanent backstay, the boats would be fast, safe, and easily handled. By this method the old-rig spars and rigging could be used and the only expense involved in the change would be the cost of the permanent backstay and of re-cutting the sails.

Yacht Race Across Tasman Sea

TEDDY, the Norwegian 40-footer, which Captain Erling Tambs and his wife have sailed more than half-way around the world, recently won a race from Auckland, N. Z., across the Tasman Sea to Sydney, Australia. Two other Maoriland boats, the *Oimara* and *Rangi*, were the other entries in probably the first yacht race over that stretch of distant water. When logs were compared at the anchorage of the Royal Prince Alfred Yacht Club, where the race ended, it was found that the best day's run of 185 miles was made by *Teddy*. Considerable interest was aroused by this race, and it is hoped that it may be the forerunner of other ocean races in the Antipodes.

Launching "Helene" from the yard of her builders, the Bath Iron Works. Her owner is Charles E. Sorenson, of Detroit. "Helene" is 146 feet in length and is from designs by H. J. Gielow, Inc. Her power plant consists of a pair of 400 h.p. Cooper-Bessemer Diesels

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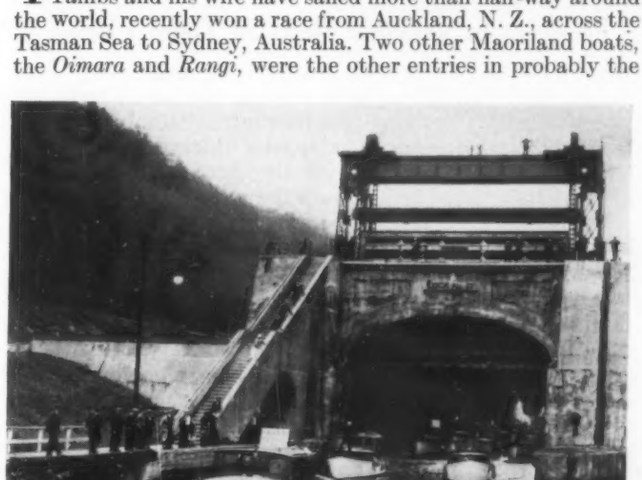
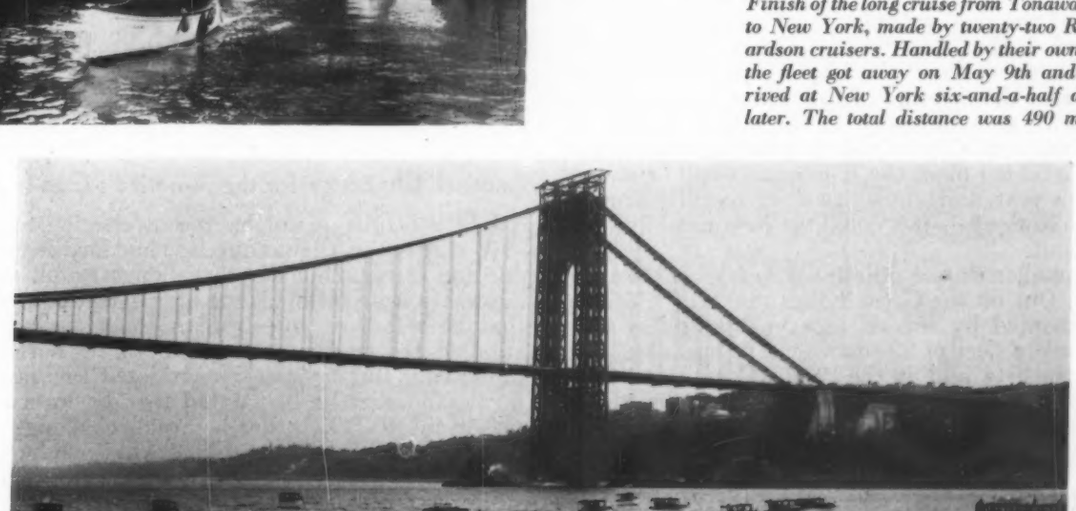
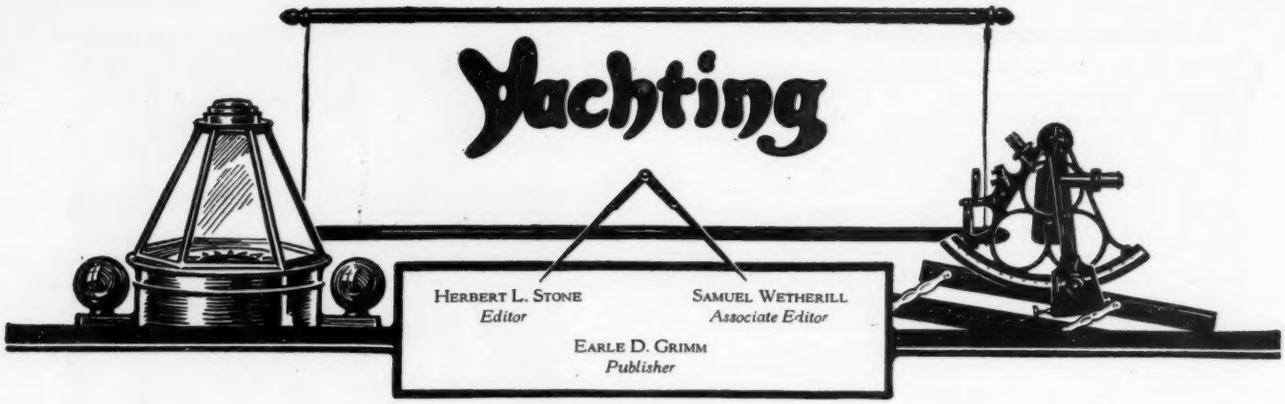


Leaving one of the locks in the New York State barge canal. The entire fleet of cruisers and the supply boat were locked through all of the 326-foot locks together

Finish of the long cruise from Tonawanda to New York, made by twenty-two Richardson cruisers. Handled by their owners, the fleet got away on May 9th and arrived at New York six-and-a-half days later. The total distance was 490 miles





EDITORIAL

Active Yachting Season at Hand

THE bugaboo of hard times is, apparently, having no appreciable effect on the sport of yacht racing. Depressions come and depressions go, but yachting goes on just the same.

It is possible, of course, that some of the larger steam or power yachts will not be in commission this season, but such craft have never had any marked effect on the season as a whole, and the racing classes this year will all be well-filled, while the smaller cruisers will be out in force. Which goes to show that yachting has become as essential to the boat owner as paying rent or taxes on his home. The history of all depressions has shown that a man does not curtail on his recreation.

In the larger racing classes there will be keen racing. In Class J, last year's Cup candidate *Weetamoe* will be out to try conclusions with *Resolute* and *Vanitie*. *Weetamoe* has been completely fitted below for cruising, while *Resolute* will have a new rig and lighter mast, which should add seconds to her speed. In the next class, "M," at least four yachts will be racing. *Valiant*, *Prestige* and *Avatar* have had many changes in rig, embodying most of the new wrinkles tried on *Enterprise* last season, and double centerboards added. *Istalena*, perhaps the fastest of the "M's" heretofore, will be raced as she is, and the meeting of these four yachts will be watched with great interest. In the 12-metre class all the boats will probably be racing, with the exception of *Tycoon*. To fill her place the *Waiandance* will be seen at the line this year, and a new "twelve" recently brought over from Norway — if a squabble over eligibility can be ironed out.

In the smaller classes practically every boat is being fitted out. Out on the Great Lakes the "R" Class has been augmented by several new yachts and is going strong, while a fleet of 22-square-metre boats has been added to the lists, and on the Pacific Coast the 6-metre and 8-metre classes have been greatly strengthened.

Of international events the coming season will also see more than the average number. We are sending an "Eight" to the Clyde to compete for the Seawanhaka Cup, and at least three "Sixes" for the Scandinavian Gold Cup and One Ton Cup series, and for racing in British waters. The Transatlantic Race is international in character and it looks now as if no less than ten starters will be at the line on July 4th, while in the other long ocean race, to Cape May, sponsored by the Corinthian Yacht Club of Philadelphia, close to fifty entries are already in hand. The two races to Mackinac also have large entry lists.

Surely, this does not look as if the nemesis of hard times was seriously affecting the sport.

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Royal Yacht Squadron Elects Sir Thomas Lipton

IT IS with a feeling of gratification that every fair-minded yachtsman will receive the news that the Royal Yacht Squadron has elected to membership Sir Thomas Lipton, who for the past thirty-six years has been the only challenger for the America's Cup. The genial Irish baronet will now be privileged to fly the white ensign from the stern of his yachts, whether or not he is bent on the quest of the most coveted sporting trophy of the world.

The Yacht Squadron is an exclusive organization. Its doors cannot be opened by a golden key. In fact, its attitude has been aptly described by an English journalist who said, "It is precisely this exclusiveness that makes the Club so highly considered, for in England the test of superiority is not looked for in the actual worth of a thing, but in the number of people who can be prevented from enjoying it." Therefore this belated recognition of the sportsmanlike efforts of Sir Thomas over a period of thirty-two years, during which he has been the foremost patron of yachting in Great Britain, is to be commended. In honoring Sir Thomas, the Squadron has added to its own prestige.

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Another Challenge for the America's Cup in Prospect

WHETHER or not his recent election to membership in the Yacht Squadron had any bearing on the decision of Sir Thomas to challenge again, we do not know. He stated after his crushing defeat last September that he was through — that a challenge for the Cup entailed too heavy an expense to be borne by any individual. But he soon reconsidered this hasty statement, and now he has stated that he wants to sail a match in 1932. Whether a formal challenge has been sent we do not, at this writing, know. We have it on good authority that he has approached the New York Yacht Club on the matter, and has asked that the races be sailed in August rather than September. Nicholson is to design the challenger, so the rumor goes. If this is so, we are glad, for the experience he has gained in the last two matches makes him the logical choice. Given a free hand, the Gosport designer will do himself and his country justice. With a good organization and someone like Sir Philip Hunloke to sail the yacht, we should see a real race for the old "mug."

IN THE WORLD OF YACHTING

CLARK C. WRIGHT

KNOWN from the south end of Lake Michigan all the way to the Straits of Mackinac, Clark Wright needs no introduction to Great Lakes sailors. For thirty years he has been sailing and racing on the Lakes, and for the last ten of these he has been an ardent supporter of the R Class, which, due to the efforts of several public spirited yachtsmen, now numbers in its fleets many of the best boats of this famous and popular class.

Clark Wright began his sailing in small boats, his first "yacht" being the 16-foot sloop "Gadfly," in 1902. A couple of years later he was sailing and racing the "Loafer," in the Chicago Yacht Club One-Design Class. In 1907 he bought the 21-foot knockabout "Cock Robin," and in her he sailed 38 races in the next two years. Then came a spell as light-canvas man on the "Naniwa" and "Banshee," until 1921, when he went into the R Class with "Colleen," which he raced for the next five or six years. In 1927 he brought the "Ardelle" to the Great Lakes and raced her with success for two years, winning the championship in 1927 and the Lipton Cup in 1928. That same year he represented Lake Michigan in the Yacht Racing Union Cup series sailed off Rochester, New York.

Last year Wright decided that it was time to go in for the less strenuous cruising end of the sport and purchased the schooner "Privateer." But competition still makes its appeal, and he sails his schooner in the Mackinac Race every year, just to keep his hand in.

He is a member of the Chicago Yacht Club, and this year he has organized the cruising fleet of the club, and of the other clubs on Lake Michigan, into a racing division, measured under the Bermuda Rule, so that they may compete in all the regattas and squadron runs sailed during the season. Already, some fifty cruising craft are enrolled in the two divisions of the class. Truly, the racing spirit dies hard.

Model Yacht Designing

Part IV—Adjusting the Ends to Give Metacentric Balance

By CAPTAIN ALFRED TURNER, R.N.

IN DESIGNING, you will find yourself well repaid for the trouble taken in calculating the position of the upright metacenter, then adjusting the shape of the ends (if they require it) by careening the model and modifying the shapes accordingly. It will at once be noticed that the ends will not fair up with the body of the boat where the keel forms an integral portion of it. For example, in Fig. 34 it will be noticed that No. 9 section balances on one line of support and No. 10 on another. If they are fair with each other as drawn, then they become unfair if forcing is resorted to in order to bring either section, or both, into a common balance.

The writer resorted to a dodge to correct this discrepancy by filling out the *quarters* of the model so that, collectively, all the sections balanced in line with the bow sections; he then tested the result. The model sailed remarkably well and it appeared that the difficulty had been solved but, unfortunately, she was of a bigger form and more powerful than her competitors, so that she could win quite frequently despite her slight tendency to fidget. Yet, in spite of the improvement, it was felt that there was something lacking, as there was still a tendency for the boat to gripe. Several models were designed on this scheme for 10-metre, 12-metre, wee "Six" and "A" classes, and the fact that they all won prizes was also unfortunate, as the designer was too easily misled.

The question, "Why allow the *quarters only* to be used to correct the discrepancy in Fig. 34?" was difficult to answer. It had been argued wrongly that if the forebody is in balance with the main line of support of the boat, treating it as a whole, and that all the sections placed on one another balance correctly on the pen knife, then the afterbody must be balanced and the boat cannot be wrong. But, if the shape of the curved edge of the shelf, as in *a b c d*, Fig. 32, in the May, 1931 issue, be considered, it will be found that it curves off to the right as the stern is approached. The griping tendency is still in the curve aft. Moreover, the boat is distorted into a bent stick, which surely cannot sail as well as a straight one.

Two models were designed, therefore; one with forced full round ends, and the other with flaring "V" ends, on the understanding that the discrepancy was to be canceled by overbalancing the ends so that, collectively, the bow sections were balanced in Fig. 34 on a line slightly to the right of the line *m 9*. Similarly, with the afterbody, until, when all were superimposed on one another, they balanced on a line intermediate between *m 9* and *n10*, which was under *m*, the upright metacenter. These models sailed uncommonly well and the fidgeting tendency had vanished. Yet the line of the shelf *a b c d* in Fig. 32 (May, 1931) (looking downwards upon it) was bent slightly to leeward at each end. The keel, therefore, compels the model to be a bent stick and this appears to be unavoidable. The effect on the bows was to cause the model to bear up and that of the stern to gripe, and, further, the effects canceled and nothing happened; the models did neither, and sailed very steadily as the wind varied in strength.

When sailing close to the wind any slight variation in the course is very harmful, but, in the opinion of the writer, a hull balanced by this method can be laid closer to the wind than could the models balanced by the earlier method described above.

The first step in designing the hull is to lay it out to any convenient size and adjust its shape so that it will sail. Then its size can be varied and the model redrawn to the desired length and weight by the employment of the rules already given.

On the other hand, calculating the size of the midship or master section in the first place will tie down the designer and possibly cripple his work; unless he knows fairly well the type that the model is eventually to be, he cannot determine the size of his master section with any certainty.

If the designer knows what the form is like before he starts, then the following method of procedure has no point at all. If the designer does not know, he should proceed as follows, remembering, in the first place, that a model cannot sail upright, though she may so drift. Draw the hull heeled to a comfortable angle and arrange for it to be able to sail in that position. As long as both sides are alike she will float upright and that position may be considered last of all. It is sometimes recommended that the first step is to draw in the profile of the model, but the beginner is earnestly requested to turn a deaf ear to such advice; the profile will look after itself.

As it is undesirable that the beginner should design anything in the nature of a freak, it should at once be decided where the metacenter is to be.

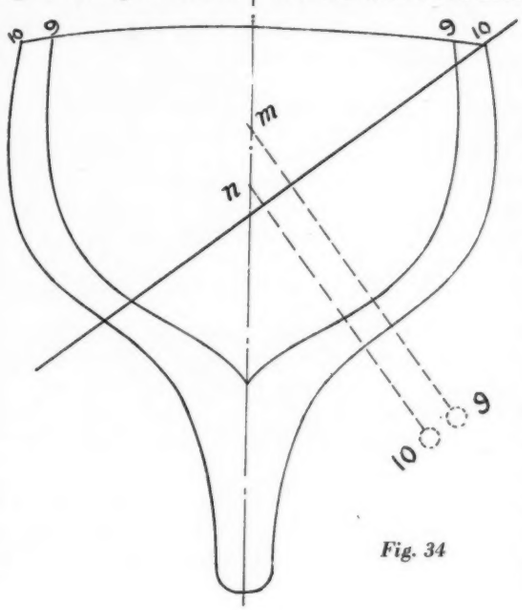

Fig. 34

If it be below the water line, there is a tendency to make a plank-on-edge; if well above the deck, a flat skimming dish. So place it, say, midway between the two as a starting point — say, three-quarters the height of the deck from the water line, as in Fig. 35, and sketch in any midship section below it, such as *a b c d e*. Your eye tells you that the underwater part, *b e d e* will not balance on the plumb line dropped from *M*.

Now try a modification, *f g c h i*, which looks more promising to the eye. Then cut out a paper pattern of *g c h d i*, crease it and balance it on the edge of a knife blade, as already described, arranging so that it balances under *M*. As the student gains experience, he will notice that there are several

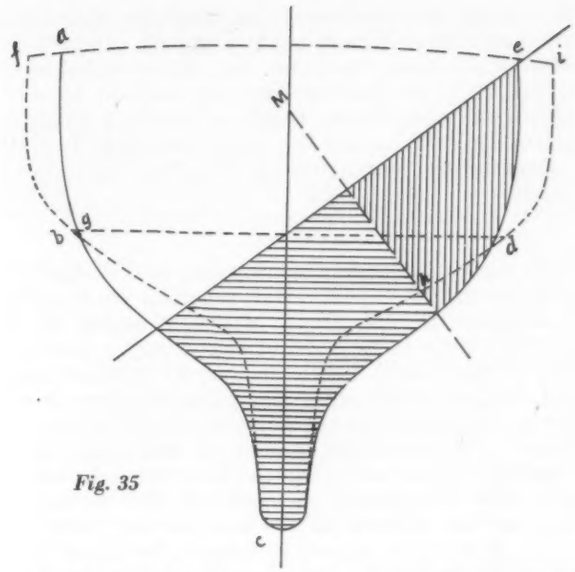

Fig. 35

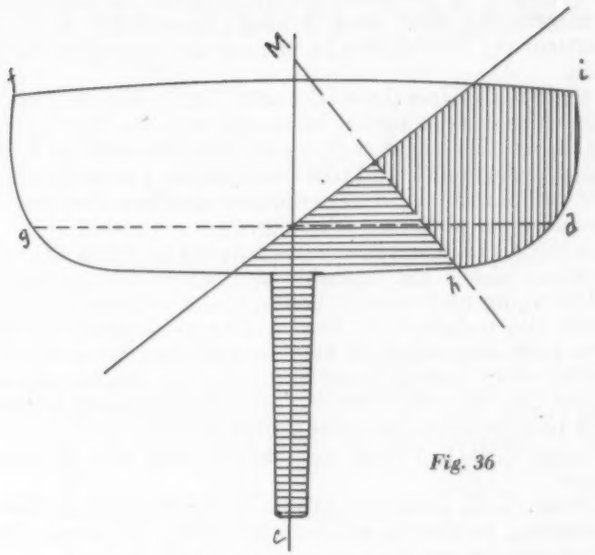

Fig. 36

shapes which *g c h d i* can take, *e.g.*, Fig. 36, but for the present avoid extremes.

As pointed out previously, the ends, *i.e.*, the shoulders and quarters, should be balanced slightly to the right of the line, and the choice must be made between round and "V" ends. This is a very important matter to decide, and one which should not be settled arbitrarily, as it introduces the question of length.

The process of completing the design of the hull may now proceed. A number of calculations will be made, but it is believed that those which are essential have been reduced in number to the bare minimum and to the simplest character.

These articles have been written for the benefit of beginners who have had little or no practice in arithmetical calculations, and they no doubt appear verbose to those who have the advantage of mathematical training — the design work being essentially mathematical in character. As far as the latter are concerned, the following method could be described in a few lines.

It is a liberal method, inasmuch as it neither ties nor binds the designer to any particular type or size of model. This method, dubbed the "metacentric method" in order to distinguish it from others, has been communicated to three different friends of the author, who are unknown to one another, and each has expressed himself as satisfied with the result, after being rather sceptical before getting the hang of it.

It is proposed, therefore, to recapitulate and take the beginner through the process, step by step, quoting the necessary references as they arise. These steps will enable the student to begin a design and carry it through to its termination with nothing but his own initiative to guide him. Nevertheless, if he has never designed a model before, he will find it profitable to analyze — and correct, if required — any existing design that tickles his fancy. He will then be able to skip several steps by taking Nos. 9, 10, 11, 12, 13, 14 first and then proceeding with No. 1, having determined a definite position for *M* in the first place — then Nos. 2, 3, 4, 5, 6, 15, 16, and so on to the end.

The following are the steps recommended:

STEP I. Sketch a midship section of any desired shape in the heeled position under a metacenter *M* which is placed about three-quarters the height of the freeboard above the load water line. (At a later stage the beginner can place *M* anywhere he likes and study the innumerable shapes of hull which can be so designed.)

STEP II. Trace the section on thin paper, cut it out with scissors, crease it for stiffening purposes, and balance it on a pen knife.

STEP III. Sketch in the bow section by eye, freehand; making it of "V" type, full-ended type, or as desired, and overbalance it slightly.

STEP IV. Sketch in two or more intermediate sections between the bow and midship section so that they balance by eye and yet appear likely to fair up later.

STEP V. Carry out a similar process with the stern sections, remembering that the run requires flattening somewhat.

STEP VI. Draw the sections in the upright position and fair them by means of diagonals, bilge curve, and water lines, the diagonals, etc., being drawn with a batten and all sections freehand.

STEP VII. Sketch in the profile of the fin as required.

STEP VIII. Check one or two sections forward and one or two aft (subsequent to this first fairing) for balancing, and correct any discrepancies, repeating the above process as required.

Make the following calculations with the model in the upright position unless otherwise stated.

STEP IX. Calculate the area of each immersed half section (Figs. 4 and 5 in the March, 1931, issue).

STEP X. Plot the longitudinal displacement curve (Fig. 6 in the March, 1931, issue).

STEP XI. Calculate the displacement in cubic inches and in pounds.

STEP XII. Calculate the area of each half water line and plot the vertical displacement curve (Fig. 7 in the March, 1931, issue).

STEP XIII. Trace and cut out patterns of the longitudinal and vertical displacement curves and balance them to find the fore and aft and vertical positions of the center of buoyancy.

STEP XIV. Calculate the height of the metacenter above C.B.

If *M*, thus found, coincides with the position chosen in Step I, the model is, to a large extent, already balanced, but, if not, redraw the sections so far obtained on another sheet of paper, balancing them midway between the chosen and calculated position of the metacenter. Repeat the process, seeing that the general character of the sections is not changed more than necessary.

STEP XV. After correcting all sections, fair them up, remembering that each fairing makes the surface, particularly that drawn by the novice, smoother every time.

STEP XVI. Heel the model as in Fig. 9 (March, 1931), and calculate the heeled immersed sections, keeping in mind whether these sections include one side or both sides of the model, and plot the result to a suitable scale for comparison with the upright displacement curve by means of patterns, as in Fig. 2.

STEP XVII. Correct any discrepancy by filling out the sections above the upright load water line forward, while fining up the underbody aft if the heeled C.B. is abaft the upright C.B., or *vice versa*, as required by the pen knife balancing. It may be sufficient to swell one section only forward and compress one section aft in order that the effect on the new displacement curves can be ascertained without undue bother.

STEP XVIII. Check the balance and fair up once more.

STEP XIX. Draw the profile in the upright position, sketching in the fin rudder and stern, and check the displacement.

STEP XX. If the design so prepared be called the trial design, and if its L.W.L. is l inches and the displacement is d pounds, then in order that it may be reproduced without disturbing its balance or shape and be n inches L.W.L. and f pounds displacement, draw 1-inch squares over the sections, as in Fig. 17, in the April, 1931, issue, and the corresponding sides of the squares in the final design will be given by our rule for conversion.

STEP XXI. Redraw the hull carefully over the new squares by freehand, and fair up for the last time. She should be not only of the exact size and weight desired, but beautifully fair as well.

STEP XXII. Insert the fore and aft position of the C.B. in the final drawing by estimating it directly from the position in the trial design, the distance from the bow being $\frac{\text{new L.W.L.}}{\text{trial L.W.L.}}$ times the distance it is from the bow in the trial drawing.* Draw new stations and water lines at convenient distances.

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Is this method complete? It shows that while the number of shapes can be enormously great, no alteration can be made to the transverse shapes of a completed design in any spot without the necessity of making another alteration elsewhere. For example, if the floors are flattened, the ends must be filled out; *vice versa*, if the floors are dropped into the fin. Also, if the floors are dropped for a considerable proportion of the length of the boat, as for a long keel, then the ends require sharpening. Further, the scales of the beam and draft cannot be altered independently of one another by vertical or transverse "concertinaing" without some general modification of the design.

As regards the scale of length, the method is not complete, as it allows the design to be "concertinaed," in or out, in a fore and aft direction without affecting the balance, and this offends one's notions of common sense.

It will probably be found, sooner or later, that there is a definite connection between the positions of the two metacenters — one of which is under the hatch, and the other two-thirds the height of the mast above the deck. If the model be compressed too much by shortening, there must come a time when it begins to pitchpole, or capsize by the bows, on a run. In a sharp-ended model with tall sails, the author does not care to have the longitudinal metacentric height much less than the length of the L.W.L., and this limits the extent to which the longitudinal "concertinaing" can be carried out in practice.

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Have these articles any bearing on yacht design? The author has had no experience in practical yacht design, and therefore cannot speak with any degree of certainty, but there is little doubt that many a successful racing yacht would make an utterly useless racing model, not so much from the point of view of size, stiffness, etc., but from the point of view of shape.

Many cases could be quoted of well-built models having been reproduced from the lines of crack, full-size yachts. But the models will not sail well enough for racing, as the absence of the man at the helm is so marked. It would be absurd to suggest, therefore, that a large reproduction of a model must make a good full-sized racer. Yet, nevertheless, the hulls of several famous successful racing yachts do comply with the requirements of these chapters, with a general exception, which is to be found in the after deadwood and the tendency, in the author's opinion, to carry the sail plan farther aft than could be arranged for in the model. On the other hand, it can be asserted with confidence that yacht hulls which make much of a departure from the proportions laid down as essential for the model do not appear to be remarkably successful.

*Note: Proportioning and locating sail plan and ballast are, of course, necessary steps in completing a design. They are, however, not essential to an understanding of the principles of the metacentric method and have, therefore, been omitted from these articles.

The Transatlantic Race Fleet

(*Continued from page 57*)

loss of speed due to the reduced rig, as *Dorade* has a very easily-driven hull, and will probably go nearly as fast in light weather with the new rig as with the old.

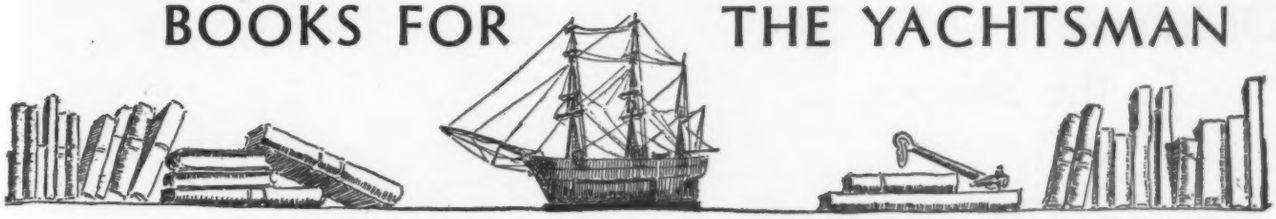
Mistress, the 61-foot Hoyt-designed schooner owned by G. E. Roosevelt, is getting primed for the fray, as is the cutter *Skaal*, designed by P. L. Rhodes and now owned by R. F. Lawrence. Both these craft made good showings in the Bermuda Race last year, and should be better than ever with the ironing out of any wrinkles which may have developed during a season's use.

Ilex, the British yawl designed by Charles E. Nicholson, and owned by the Royal Engineers, is due to arrive June 20th, and will be rigged immediately and sailed to Newport, where the finishing touches will be applied. *Ilex* has an enviable reputation abroad, and so has her crew, which is said to be one of the hardest driving outfits ever to sail in an ocean race anywhere.

The fleet will start to gather in Newport Harbor shortly after the start of the Cape May Race from New London on June 20th. Officers of the Ida Lewis Yacht Club have offered the use of their clubhouse to the competing crews, and the Narragansett Bay Regatta Association is coöperating with the Race Committee of the Cruising Club of America by making the fullest arrangements for the comfort and convenience of both crews and committee.

A get-together dinner for the crews will be held at the Viking Hotel, Newport, on the evening of July 2nd.

BOOKS FOR THE YACHTSMAN



VANISHED FLEETS

By A. J. Villiers

(Henry Holt and Company, 1931. $3.50)

A. J. VILLIERS has already established his name as a biographer of the last days of sail. In *Falmouth for Orders* and *By Way of Cape Horn* he has given us graphic first-hand experiences of life on the fast-dying windjammers. In *Vanished Fleets* he has gathered together a mass of interesting material relating to the founding and early days of Tasmania, or old Van Diemen's Land.

As an island colony, the history of Tasmania is the history of the waters and winds that sweep about it. This nautical history is packed with the drama of convicts, pirates, wreckers, whalers, and the more legitimate and prosperous clipper ships of this farthest removed of Britain's colonies.

Villiers encountered difficulties in weaving into a coherent whole the mass of legend and evidence uncovered in the early days of Tasmania. On the whole, he succeeded admirably. Even when he failed in part, the salt air that blew into the forecastle of the *Grace Harwar*, where the book was written, has given a vivid, sympathetic coloring to the entire volume.

Because of its very inaccessibility, Tasmania was originally settled as a prison camp. The cruelties of the camps led to astounding acts of piracy. Ships were stolen from the very harbors, and many of them sailed, ill-manned and frequently ill-found, to the far-off western coast of South America. There is adventure and sailing in those pages.

The whaling days in that distant region were also full of more than their share of action. There is a vivid account of the pursuit of the whales from the Derwent River out to the open sea, and the affair of the *Essex* with a maddened whale also receives mention.

Brilliant and daring in its conception, the voyage of Captain Kelly completely around the island colony in an open boat loses nothing in the telling by Mr. Villiers. There is also material on the dangers to navigation in Bass Straits, the graveyard of many a good ship and fine, together with the concurrent activities of the wreckers.

Vanished Fleets lacks the strong personal qualities found in Mr. Villiers' two previous books. Yet it contains so much of an older sort of adventure that its charm is very real. Throughout it all the true seafaring ability of the author lends a frankness and a salt-water interpretation that should make this book a most interesting volume of the early days of wind and canvas. What *By Way of Cape Horn* is to the dying windjammer, *Vanished Fleets* is to the sails that have long since gone over the horizon.

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ATLANTIC CIRCLE

By Leonard Outhwaite

(Charles Scribner's Sons, 1931. $3.50)

THE story of a 14,000-mile cruise in the 90-foot schooner *Kinkajou* offers more than its full share of interest to the reader. "Atlantic Circle" is a fitting description of this cruise, around the shores that enclose the North Atlantic.

Aside from the interesting account of the voyage itself, such a cruising course brings to light a delightful combination of the old and familiar cruising grounds with new and seldom visited ports. To our knowledge, there has been no other book on cruising from the United States to England and France by way of the Azores, followed by stops in Portugal, Spain, Gibraltar, Madeira, the Canary Islands, the West Coast of Africa, the West Indies and back home.

And in these ports, untouched by most yachtsmen, lie charm and color that add a particularly vital spark to the whole flavor of the volume. Incidentally, the cruise down the African coast presented an obstacle to navigation seldom encountered by those who hug our home shores closely — the Harmattan, a sand storm that can be — but in this case was not — meaner than any fog.

The author gives vent to his thoughts on ship chandlers in no uncertain words, for the quality of work done for a deep sea voyage. Apparently no great damage was rendered by this short-coming, except in the engine. Yet one should not gather the impression that *Kinkajou* relied on power, except for harbors and occasional long stretches of calm.

By the lack of a squaresail, Mr. Outhwaite has been added to the many converts to this rig for long ocean cruises. This is just one of the many detailed points of cruising depicted in a vigorous style, written with a racy enthusiasm.

During the great gale of early October, 1929, *Kinkajou* fought her way from Falmouth to Lisbon, the while the Irish and Welsh coasts were damaged and many a larger vessel put back to port. On more than one occasion she proved herself a comfortable and seaworthy companion.

Mr. Outhwaite deserves especial thanks for the manner in which he makes this volume enjoyable for sailor and landlubber. The hardships and adventures are not magnified. There is no terror of the sea, only a wholesome respect. Yet for the man who does not like to read of cruises, rigs, day's runs, and the like, there is plenty of just plain travel, very well written. On the other hand, it will indeed be a salt-encrusted son of the sea who would not get a thrill from the description of climbing Mt. Pele while it was in eruption.

In a word, for the more than 300 pages, there is plenty of action, plenty of sightseeing, with even wholesome bits of philosophizing thrown in.

J. G. S.

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THE 1931 N. A. Y. R. U. YEAR BOOK

THE 1931 year book of the North American Yacht Racing Union, containing the recent amendment affecting the "International Rule of Measurement" adopted by the Permanent Committee of the International Y. R. U. at its meeting in January, 1931, is now available. In addition, there is an amendment to the instructions for measurers which limits the use of trick booms.

A valuable service is rendered yachtsmen in the publication of this year book, as it brings together the racing rules, rules of measurement, time allowance tables, and considerable nautical information of special value to the yacht owner.

The new year book calls attention to Article II of the Constitution as published therein. This states: "The objects of the Union shall be to encourage and promote the racing of sailing yachts and to unify the rules. It is not intended that the Union shall act in other than an advisory capacity, except in the admission of additional eligible members."

Membership in the N. A. Y. R. U. is extended to all those who wish to support and encourage yacht racing.

Of Interest To the Skipper

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Oil Burning Shipmate Range

The Stamford Foundry Company has developed a thoroughly satisfactory fuel oil burning range. This is a problem on which they have been engaged for nearly three years, during which time burners of practically every design have been tried. The Ray Midget Burner was finally selected and adapted to the Shipmate ranges.

The burner is made an integral part of the range. It is of the modified "gun" type operated by a 1/15 h.p. motor turning at something over 5000 r.p.m. The oil is introduced through the motor shaft into a small cup attached to the end of the shaft and is completely atomized by centrifugal force. At the moment it issues from the nozzle, it is caught in a whirlwind of air rotating in a direction opposite to that of the nozzle from which it issues. This air is supplied by a fan forming an integral part of the burner.

Thus the oil, after being completely broken down, is thoroughly mixed with air and burns without residue of soot or smoke. An air regulating shutter affords the means of adjusting the amount of air allowed to pass through the burner and thus the flame is kept in an efficient state whether it is at a high or low point.

The burner operates on 28 degree Baumé oil. This grade of oil is obtainable almost anywhere for about 7 cents per gallon which means surprising economy in operation. Oil consumption runs from 1/8 gallon to 2 gallons per hour, depending on the size of the appliance.

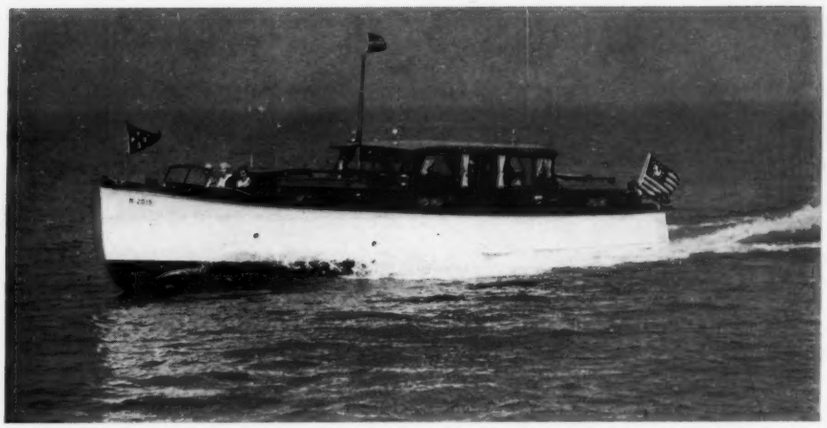
As for the ranges themselves, the makers have taken their coal Shipmates, made the necessary changes, notably in the fronts and fire-boxes, insulated them, and adapted them for use with the Ray Midget Burner.

New Outboard Boat Directory

To provide a quick, convenient reference for people interested in outboard boats, Outboard Motors Corporation, of Milwaukee, manufacturers of Evinrude and Elto outboard motors, are issuing the second edition of their Outboard Boat Directory.

In it are listed the names of 189 boatbuilders in all parts of the United States, with a complete list of the various models manufactured by each.

These directories can be secured by writing to Boating Bureau, Outboard Motors Corporation, Milwaukee, Wis.



Fitted out and ready for summer cruising. This trim Mattheus cruiser typifies the latest in American power cruisers

New Device Deadens Vibratory Engine Sounds in Motor Boats

News comes from New Haven that "Old Man Joe" (Snow & Petrelli Mfg. Co., makers of Joe's Reverse Gears) has developed and produced a radically new and unique improvement in his Two Hundred Series of double clutch reverse gears which materially reduces vibratory sounds generated by the motor.

Under severe conditions, the gear may become an amplifier of these vibrations to such an extent as to lead the user to think that the gear itself generates the noise. Old Man Joe's company has, after much experimenting and testing, perfected a device and incorporated it in their gear drum, without changing the size or appearance of the gear, which serves in a marked degree as an effective dampener of any vibratory sound generated by the engine torque.

This is a distinctive and highly important feature of Joe's Double Clutch Gears. It is not applicable to the old type of reverse gears that take the forward drive through locked gear teeth instead of around the gear train through the double clutches.

This will be good news to all builders of high power, high speed motors, as well as to boat builders and to the boating public generally.

"Bombazoo" is one of the new Marblehead Guide Boats, and is owned by John Wanamaker, of Philadelphia. Universal True-Twin "Sixes" furnish the power

"Miahelo II," a 43-footer owned by J. J. Hallenbeck, was awarded first place in Class A in the recent Long Beach-San Francisco Ocean Race. She was built by Stephens Bros., Stockton, Calif., and is equipped with an 80 h.p. Scripps Model F-6

"Mary Jane," a 34-foot Sport Playmate, is powered with a 150 h.p. Sterling Petrel engine. Mr. E. C. Wallis, of Washington, D. C., is her owner

England Sends Things for Our Yachtsmen

The sports-loving Britisher has learned lots of little tricks which are welcomed by sportsmen the world over. Fortnum & Mason, Inc., the new shop on Madison Avenue at 62nd Street, New York, is full of many articles from England which will appeal to American skippers . . . sweaters of extraordinary softness, warmth and unusual colors . . . sports shoes, many of which are ideal for yachting . . . tea hampers, fitted as only the Britishers know how to do it (containing those clever contrivances for making tea, which is always welcome on the briny). Fortnum & Mason also feature an old English game, "Shove Ha'penny," which British sailing men have played for years.

The food department of this intriguing shop will tempt many a boatman who likes things collected from the seven seas.

Non-Fouling Flag Staffs

To all yachtsmen who have craned their necks aloft into a blazing sun and futilely tinkered with halliards trying to unfoul a masthead pennant, this recent innovation designed by the Elisha Webb and Son Company, will come as a welcome relief. And now, when burgees are being hoisted to the breezes of the new season, is the time to equip your ship with this self-tending and non-fouling flag staff.

Latest Wheeler Playmate

The latest 34-foot sport Playmate, built for E. C. Wallis, of Washington, is a trim sport cruiser featuring a full-vision bridge with two comfortable built-in seats, rolling side curtains and dropping screens. The main cabin has full cruising accommodations for four and an additional berth is provided in the bridge. Large forward and after cockpits are also standard in this model.

Power is furnished by a 150 h.p. Sterling Petrel motor. A unique feature is a complete sending and receiving radio set.

Fleetwing Showroom on the Hudson

The Robinson Marine Construction Company of Benton Harbor, Mich., has appointed the Fleetwing Yacht and Shipbuilding Corporation, 153rd Street and the Hudson River, New York City, dealers for Metropolitan New York and export representatives for their line of Seagull sedans, commuters and express cruisers, ranging from 36 to 55 feet, with speeds up to 50 m.p.h.

In addition to having on display a 36-foot and 40-foot Robinson Seagull at their waterfront showroom, the Fleetwing organization also has a 55-foot twin screw cruiser, 40-foot De Luxe, and 40-foot Standard cruiser on display.

The Fleetwing showroom is uniquely situated, its location being next to that of the Colonial Yacht Club, on the Hudson River.

In Western Michigan this 26-foot Dart runabout, powered with a 225 h.p. Sea-Wolf Kermath engine, is a popular model

The Fleetwing showroom on the Hudson River offers a unique display of Robinson Seagulls

FOR THE TABLE AT SEA

Y-25—Specially combined yacht china service for six, English semi-porcelain. Blue band with two flags or one flag and name of your boat.

Service for Six, 38 pieces **$45.00**

Y-4—A 1931 cocktail shaker that is amusing in its resemblance to a ship's lantern. It holds two quarts (of anything) and may be decorated with ships, dogs, golfers, polo, or crossed flags, and the bands may be any color you choose.

Shaker **$12.00**

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Summer Store

MAGNOLIA MASS.

Bermuda "Sixes" Trim American Boats

(Continued from page 58)

Bob Meyer got the start with *BobKat* and opened up a lead on the first windward leg, taking his boat to windward in fine style. After rounding the mark *BobKat* set an immense spinnaker, the like of which had never before been seen in Bermuda, and under the pull of this sail drew farther ahead, while *Lucie*, *Viking* and *Achilles* had a hot battle for second position throughout the first round.

On the second round the Bermuda boats set only working jibs, while the Americans hung on to their Genoas. *BobKat* continued to gain, and in a breeze of this strength, when she could carry her jib, she proved very fast. This round was a repetition of the first. *BobKat* won by a comfortable margin, and Kenneth Trimingham landed *Viking* ahead of *Achilles* and *Lucie* for second place. This "win" by *BobKat* placed Meyer only two points behind Eldon T. Trimingham in the point score, and much depended on the result of the last race, the next day, April 17th.

The wind was piping a good 25-mile breeze from the E.N.E. for the fourth race, and the Bermuda boats went out with single reefs down, while *BobKat* and *Lucie* carried full mainsails and working jibs. Just before the start, and after the preparatory signal, *Sea Venture* tore her mainsail and had to withdraw. The course was triangular, the first leg being to windward, and *Viking* got off in fine style, going fast in the heavy going, but pressed closely by *BobKat*. *Viking* rounded the first mark with several lengths lead on *BobKat*, but on the reach Meyer set a ballooner and closed up the gap a bit. On the third leg, a very broad reach, *BobKat* gained another half length or so, but the order at the end of the first round was unchanged, being *Viking*, *BobKat*, *Achilles*, *Lucie*.

On the second windward leg *Viking* covered *BobKat* successfully, and let *Achilles* and *Lucie* go off on a long board to port. The latter gained, and when the boats came together again, *Achilles*, on starboard tack, slipped by *Viking* and stood to the north for a few hundred yards, where she got a favorable slant that let her lay the mark, which she rounded with a good lead, the order being *Achilles*, *Viking*, *Lucie*, *BobKat* and *Aphrodite*. At this mark *BobKat*, endeavoring to squeeze through on the inside, fouled *Viking* and withdrew from the race, thus losing whatever chance she had of winning the race and the cup. *Lucie* got by *Viking* on the next two legs to second place, the order at the finish being: *Achilles*, *Lucie*, *Viking*, *Aphrodite*.

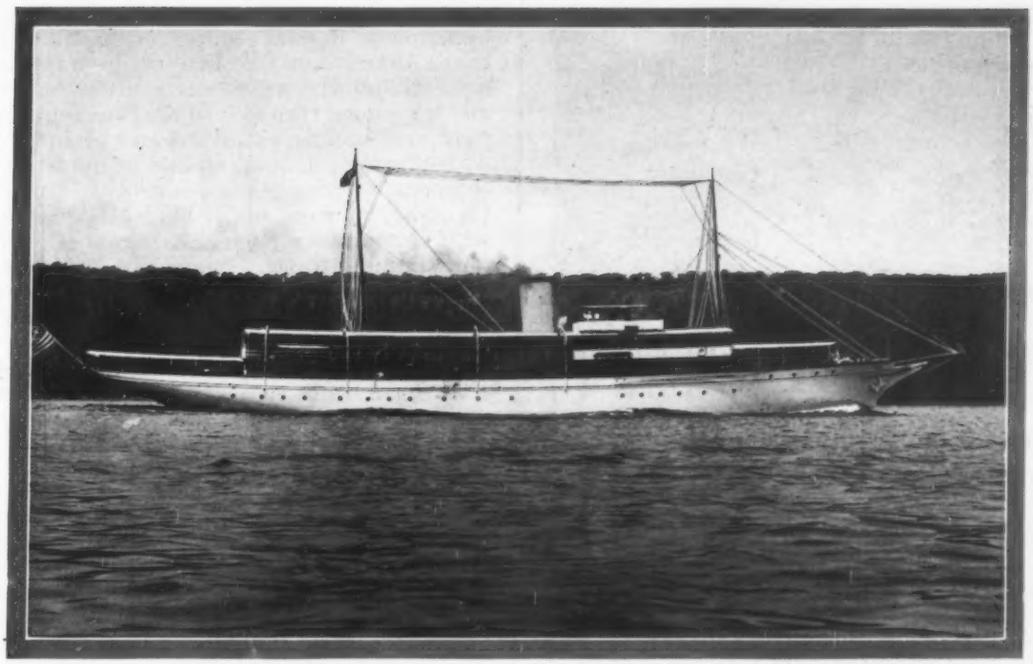
About Those Motor Boats

(Continued from page 53)

Following Widegren by a couple of minutes, Col. S. Tooey, of Genesee, N. Y., arrived and before the two-hour time limit expired 38 of the original flock of outboards had completed the longest race of the year. There were no women among the outboard drivers this year—for the first time. What does this mean?

About two hours after the first outboard flashed over the finish line, the assembled commodores began to murmur, "It's about time for those inboard runabouts to show up." And sure enough, along came Mrs. Mildred Hickey and *Miss Aldine*, an unbeatable combination. Mrs. Hickey is one of the best known of our outboard drivers and the steed she was driving was the famous little Dodge 16-footer of Frank Wigglesworth, in which he finished first in the 4-cylinder class in last year's Albany to New York race, won the 50-mile Dodge

Pleasure Afloat



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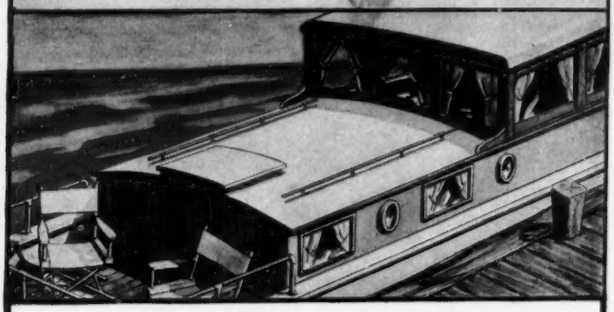

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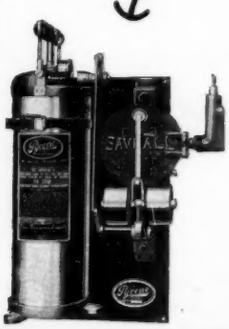

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NEWARK NEW JERSEY
ATLANTA KANSAS CITY CHICAGO SAN FRANCISCO

Sweepstakes at Detroit, and about every other runabout race in his class during the season.

Wigglesworth himself had a bad time of it in his new 125-cubic-inch hydroplane with which he was leading his class until an oil line broke, causing him to finish just before the time limit expired, but in time to win third prize in that new and sweet running class.

The entire contest was packed with excitement. Commodore Ross Maddocks, of the New England Outboard Association, who had just been released from the hospital and who was strongly advised not to start, was making a good race of it in the runabout class, until his right arm became paralyzed and he spied the veteran, Al Buffington, floating around in the Hudson River on the point of exhaustion, his new 125-cubic-inch hydroplane having sunk under him. Maddocks stopped and with great difficulty took Buffington aboard and carried him six miles to the Poughkeepsie patrol station, thus losing any chance he might have had of winning. But at that, he came in second to Mrs. Hickey in the runabout division.

Instead of petering out as many sporting events do, this Albany race seems to increase in importance and thrill. This year it was run particularly smoothly and made a fitting opening to what looks like the greatest motor boat racing year we have ever had.

A European Cruise in "Antares"

(Continued from page 46)

and wait for the weather to moderate. We therefore headed inshore and made Estaca Point just about dusk, but gloom and rain made the location of landmarks so difficult that the Skipper felt a night at sea would be much safer than putting in, though less comfortable. So we put the jib and mizzen on her and hove her to on the port tack, setting an anchor watch, knowing that she would work well offshore during the night.

In the morning, August 3rd, it was blowing even harder and we found that *Antares* had worked off to such an extent that the land was no longer visible, even though the coast at this point is quite mountainous. We then put her on the starboard tack and headed south, picking up Estaca Point in about two hours. It was still blowing a full gale, though the weather was clearing.

We entered Barquero Inlet in the early afternoon and lay there three days. The harbor is safe from west and southwest gales though open to the north and northeast. It has some of the aspects of a Norwegian fiord, being bowled and mountainous and carrying deep water well to shore. It is easy of access and is probably the best harbor along this coast. We visited the villages of Barés and Barquero and took the power skiff as far up the Rio Barquero as there was water.

At dawn on the morning of Wednesday, the sixth of August, the anchor watch discovered that the trawlers had all departed and that the wind had dropped considerably. After breakfast it appeared that the anchor-winch motor was ailing, so we turned resignedly to the task of getting in our ground tackle by hand — sixty fathoms of chain with a 750-pound anchor on the end of it. We worked in short relays, two at a time. It was brisk work while it lasted, but soon over, and we were ready for sea.

Antares was headed along the coast, repassing Point Estaca, then Cape Ortegal, Cape Vilano, and leaving Finisterre well to port — a cruel coast. The sea was still unpleasantly heavy, but the wind had greatly abated. The following day, the seventh, was a little warmer and

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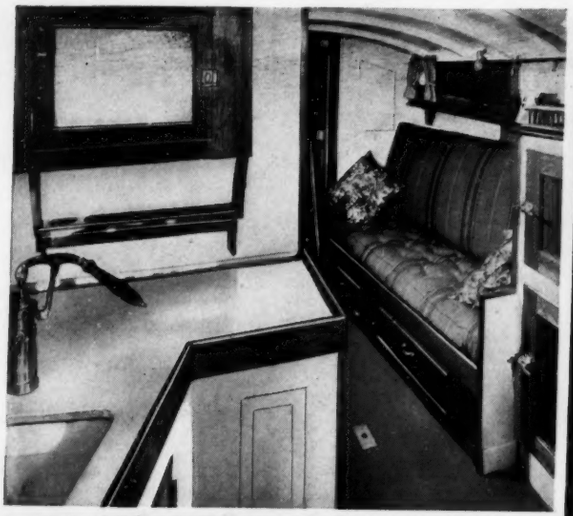

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more cheerful, with a pronounced swell. As we drew away from the Spanish and Portuguese coasts and approached the Azores it grew much warmer.

A little extra care was taken with the sights preparatory to making our landfall on San Miguel as it would present a very narrow edge to our approach, necessitating a good fix. We picked up Arnel Point Lighthouse directly ahead at 2:30 A.M. on the tenth. In the growing light we skirted the steep-to coast, made more picturesque by white buildings buried in green foliage. At 8:30 in the morning we arrived at Ponta Delgada where we anchored and moored our stern to a buoy. All hands went ashore after breakfast and drove around the island, stopping for lunch at a hotel, deep in a volcanic crater.

We had completed the greater part of our voyage, and were on the last lap. By noon of the following day, Monday the 11th, *Antares* was ready to sail. The weather was beautiful; the sea smilingly blue.

Since we had favoring northeast winds it was decided to sail a rhumb line for the Delaware Capes, hoping that they would carry us well on our way. Otherwise, we would have dropped down to about the parallel of 33 and made our passage on the line of the low powered steamer track. The plan worked well, indeed, and for five days in crossing the Sargasso Sea the weather was delightful. In fact, it was the first fine weather we had had since nearing the chops of the Channel.

Saturday, the sixteenth of August, changed all this, however. The wind came in strongly from the southwest, accompanied by terrific squalls and a heavy sea. The storm king was playing with *Antares* for the third and last time of the voyage. We were soon forced to slow down, but were determined not to heave-to unless it was absolutely necessary.

After two days of southwest gales, the Arlington weather reports showed us to be on the outskirts of a tropical disturbance which was moving up the coast at that time, while another was following it, but considerably further south. Our slowing down allowed the first to pass on its way, after which the wind became northeast, blowing harder. With all sail set, we speeded up, and our little vessel was dexterously eased between Scylla and Charybdis like an agile pedestrian between two speeding autos. We were on the western edge of the Gulf Stream at this time, the wind from the northeast, that is, over the starboard quarter, and the seas were exceedingly high and steep.

The northeast wind cleared the sky somewhat, making sights possible. Our position at 5:00 P.M., on August 20th, was Lat. 38° 20′ N., Long. 68° 42½′ W.

On the 4 to 8 morning watch of the 21st occurred the only breakage in gear of the entire voyage. The lower headstay, upon which the jib was set, broke in the threads of the turnbuckle, setting loose that great heavy canvas giant, armed with the massive iron turnbuckle as a weapon. Luckily, the lifelines were made fast to this part of the standing rigging, above the break, and the mate on watch (my humble self), crawling forward in the shelter of the anchor chains, was able to catch this line over the bronze pin of the bitts, crawl aft again to safety and draw the thrashing monster down. The jib was then lowered and aid in stowing it was given by Zeb who was just coming forward after his engine room watch. After breakfast the headstay was put back in place by means of two watch tackles fastened to the anchor shackles. (*Antares'* anchors are stockless Eels and are housed in the hawse-pipes.) Though the day was partly overcast, a very respectable fix was obtained. We also got radio compass bearings from the Delaware Capes group and took some ourselves with their direction finder. The radio department had been busy with messages to and from *Antares* for two days

and the total of telegrams sent and received during the voyage was brought up to about one hundred.

It was interesting to note that as we left the Gulf Stream on the morning of the 21st and approached shallower water, the sea gradually subsided, and while it still would have been exceedingly dangerous to a small boat, the smaller broken seas that we found in shallower water, say from 20 to 25 fathoms, were of no moment to *Antares*. In this connection we heard later that a menhaden fisherman of the usual type, well over 100 feet in length, broke up and foundered in Delaware Bay off the breakwater the night of our arrival.

We picked up Five Fathom Bank Lightship at 8:00 p.m. The run from San Miguel, Azores, had been 10 days, 11 hours, 15 minutes, a distance of 2,334 sea miles.

Antares was soon inside the Capes and running up the well lighted Delaware River. Philadelphia is ninety miles from the Capes and we arrived at quarantine at 8.00 p.m. Another hour, and we were at the Corinthian Yacht Club, on whose docks were gathered family and friends.

Thus came to a close a most successful cruise. Hail to *Antares*, as staunch and easy a ship as ever sailed!

From Soundings to Plymouth

(*Continued from page 51*)

of rain sounds a warning note. But, as a whole, the barometer is the best guide, the more rapid its movement, the shorter duration of each phase and the swifter the change of wind.

In fine, settled weather, land breezes are common at night, if radiation has been good by day; but often they do not extend far seawards, and are only to be found in the bights of the coast. Against this is the phenomenon that there is sometimes a breeze well out to sea, though a flat calm exists inshore; and often enough it is best to spin a coin and abide by the decision of chance.

Indications of southwesterly or westerly weather, after a fine spell, are, a heavy swell from that direction; surf upon the coast; a mackerel sky, or streaked cirrus, moving from the west; the nose cut off the land; and, of course, the usual drop in the barometer, rise in temperature, and increase in humidity. Bad weather, the fishermen say, always comes up with the flood tide, and though meteorologists deny this assertion there is no doubt that it contains much truth.

Fine, settled weather usually brings light breezes between northwest and east, with considerable dew at night; and it is during these quiet periods that land and sea breezes are probable. Once the dew ceases, a change of weather is to be looked for.

Though the wind, after a westerly blow, always veers to the northwest if the glass rises, it may never reach this stage owing to the presence of another approaching depression, or an associated secondary; and will start backing, instead, to a falling glass. Sometimes, though, after it has reached northwest it flies to the north-northeast, and the glass starts tumbling down — a certain sign that a heavy northeasterly gale will follow and will be of long duration; but this perverse whim of weather is almost unknown in July, occurring, usually, in the spring and late autumn.

An eye on the moods of Æolus, the luck of a fair tide at the Lizard and off Plymouth, a decision to make a landfall east of Bishop Rock or the Lizard, if a southwesterly blow with low visibility predominates, may considerably enhance the chances of winning the race. And surely the choice of a finishing line at Plymouth is felicitous, for no other port has forged so many links between the old world and the new.

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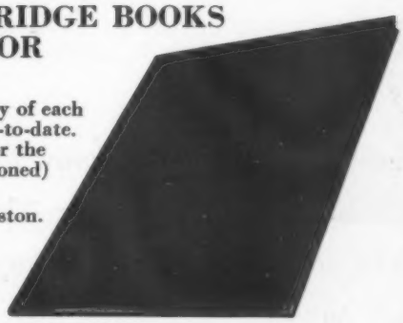

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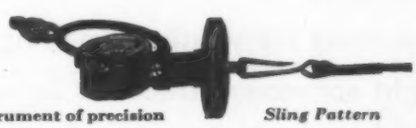

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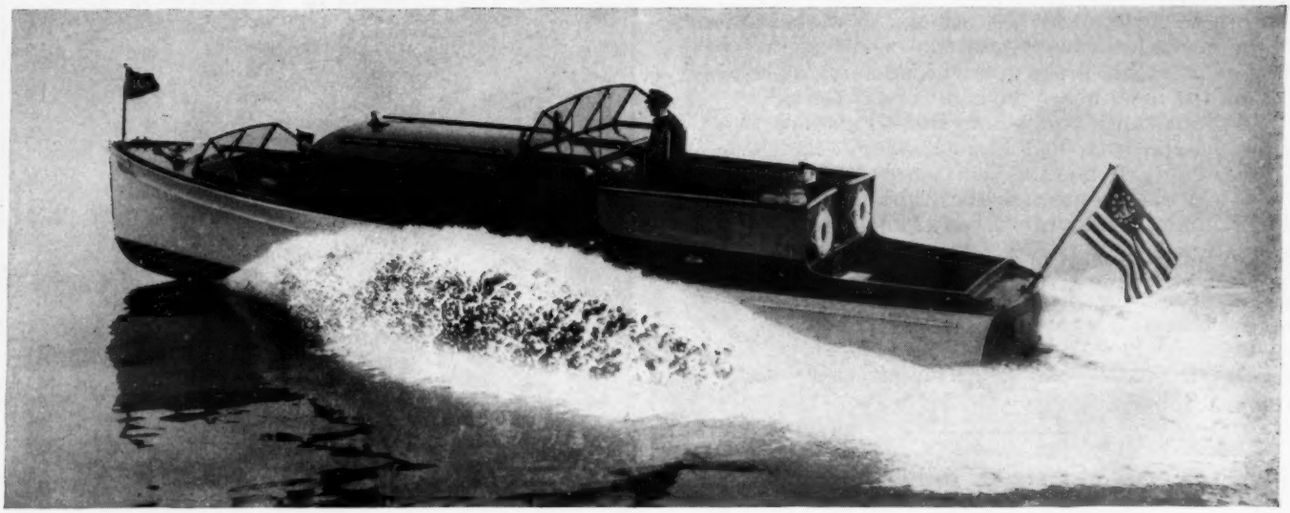

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Three decks give you room and variety. Forward you can take the panorama of water and shore as it approaches: on the bridge deck you have plenty of space for easy operation, for comfortable lounging: aft there's a fine deck for fishing, swimming, or for watching the wake.

Stepping inside, the cabin is inviting in arrangement and decoration, snug and shipshape quarters for weather days; light and airy, too, for dining and sleeping. There are over-night accommodations for four, with room for an extra on the bridge deck.

There's pride in owning and sailing the "38". Satisfaction, too, in the fact that the "38" is an A.C.F. cruiser, a worthy product of the largest makers of transportation equipment in the world. Years of skill and experience are back of every A.C.F. cruiser and yacht. May we send you a description of the "38", of the whole A.C.F. fleet?

AMERICAN CAR AND FOUNDRY COMPANY

MARINE SALON: 217 WEST 57TH STREET • NEW YORK

"Dandy"

(*Continued from page 69*)

water and not an inch farther would she go. More wind only made her sail faster. On this reach we reckoned we were doing about nine knots, although she was making extraordinarily little fuss about it.

That night we lay in MacDuff harbor, and next day went on to Buckie, where we made some adjustments to the engines and took in fuel. Here it was decided that we should go on northwards and make for the west coast by way of the Pentland Firth instead of going through the Caledonian Canal. This promised to be something of an adventure, for the Pentland Firth which runs between the north of Scotland and the Orkneys is certainly one of the most formidable places anywhere in the North Atlantic, if not in the world. At the Pentland Skerries, at the eastern end of the channel, the tide at times runs 10 knots, and at the springs the Firth becomes a mass of overfalls, tide-rips, and whirlpools. At neaps, even in fine weather, one may find a good deal of broken water in places, and it is very unwise to attempt to make the passage of the Firth unless one can hit off one's tide exactly.

We worked out the tide times most carefully and found that the first of the west-going tide would make at Duncansby Head at six in the morning. We reached Freswick Bay, about 3 miles from Duncansby, with four hours in hand and there we lay-to, waiting our tide.

We were wonderfully lucky in our day; one might wait for months without finding everything so favorable. Dead neap tides, a lovely day, a smooth sea and a light breeze off the land. As we rounded Duncansby Head we took the first of the tide and went splashing through a little tide rip with both engines going full out. Then we had easy going as far as St. Johns Point where there was more broken water, but we kept outside it. Then round Dunnett Head where there was another tide-rip, and so across the bay to Scrabster Harbour. Here we secured to the quay for an hour while we got fuel and provisions from Thurso, which is near by.

It was a lovely day, and as the weather in the far north of Scotland is very fickle, we pushed on to make Loch Ereboll for the night. Towards evening it came on to blow from the S.W., with torrents of rain, and we were glad when we reached an anchorage at the very top of the loch about midnight.

So far, since leaving St. Monans, we had been lucky in the weather, but from now on we met with a spell of strong head winds and rain. By night we anchored in the lochs where there are many sheltered anchorages, and by day we punched our way southwards as far as Oban, where the weather changed again and remained fair until we reached the Clyde.

There could be no doubt about the boat; she behaved splendidly and we had given her a thorough trial in rough water, though not in a gale of wind. I had to leave her in the Clyde, but Dr. Ward went on for a long cruise upon the Irish coast before he returned to his home waters near Plymouth. During the following winter he planned the new rig, a Bermuda ketch, of which a photograph is given, and he tells me that under it she is very light to handle and sails well. Now, after having thoroughly tried out the boat, he thinks so very highly of her that he is having another built to the same lines, but ten feet longer.

To me, she is one of the most fascinating craft I have ever sailed in, and I believe she is able to go anywhere. I hope that readers of YACHTING may find her of interest as a type of shallow draft boat which has proved her quality not only as a yacht, but also in the infinitely more searching test of the Lifeboat Service.

Pearl Fishing in Northwest Australia

(*Continued from page 64*)

sunset, when an anchor is let go in the open sea for the night. The day breeze usually stirs up a short jump and when the strong tides swing the luggers across this there is some pretty lively rolling until it tapers off. The divers work at a tremendous pitch and never waste a minute, nor do they allow anyone else to. They are paid a small monthly wage and well found; above that they draw from £25 per ton on a rising scale up to £48 per ton on shell raised, besides ten per cent on pearls. This is divided between the two divers in proportions agreed upon among themselves. A good diver makes about £500 a season — and earns it.

As a rule, the owner of a fleet does not go to sea with it, but employs a "shell opener" who represents him on board and who personally opens all shells and takes charge of any pearls found. His pay is £8– per month and all found, besides a commission of from ten per cent to fifteen per cent on the value of pearls brought in. The earnings vary greatly, but a lucky shell opener will sometimes draw several hundred pounds above his pay in a good season. For a young man fond of the sea I can hardly think of a better job for two or three years, while he gained experience and saved the money to become the owner of a lugger. Even one lugger would bring a good living, provided he looked after her personally.

Often the shell opener has to attend to six or eight luggers belonging to his owner. In this case his ship does not have any divers working from her, the whole time being filled in picking up bags of shell from the fleet and also supplying it with water and stores. The shell comes aboard in sacks weighing about one hundredweight.

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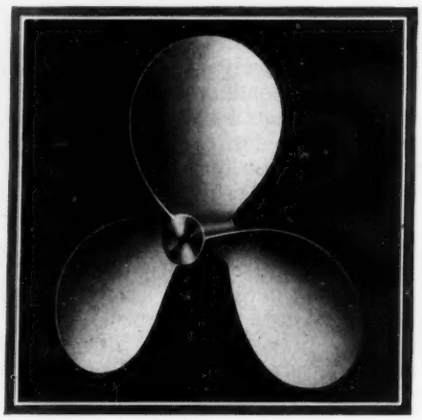
EXPERIENCE



Cap'n Allswell says:

"There's no substitute for havin' done it a few hundred times!"

EXPERIENCE teaches a man what *not* to do. By religiously avoiding a repetition of the things that will not work, he arrives, after a period of years, at that degree of skill often called "master craftsmanship." Such a procedure accounts for the many friends of Columbian Propellers.

Columbians have long been developing top-notch power for all kinds of craft — racing, pleasure, commercial; in fresh water and salt, winter and summer . . . all because we have learned how to design a good propeller and fit it to the job!

If you have been pestering along with a good boat and engine and no "pep," give us the details. If it's your propeller, we'll say so, even at the risk of having to sell you a new one! If it isn't that, we'll try to help you anyway.

At any rate, send for our latest catalog, "Propellers in a Nut Shell."

Propellers Reconditioned

THE COLUMBIAN BRONZE CORPORATION

236 North Main Street Freeport, L. I., N. Y.

Pacific Sales Representative:

H. A. B. Sneve Co., Seattle, San Francisco, Los Angeles

COLUMBIAN PROPELLERS

When this is all on the deck of the mother ship the first sack is opened and the contents dumped alongside the shell opener's seat; he stands a shell on its edge and slips in a thin bladed knife which severs the adductor muscle and the valves of the shell gape widely. The meat is sliced clear and thoroughly squeezed through the hands for any pearls that may be embedded in it. Any discovered are dropped into a cigarette tin half full of water. Many are found, but few are of real value. The shells are scrubbed clean and the thin lips chopped off with a small axe to prevent their cracking when dry; they are re-packed under the label of the lugger which raised them. The whole operation is well organized, all members of the crew taking part. In flavor, the muscles of the shell are not unlike the scallops so much enjoyed on the East Coast of the United States. They are used locally for making soup, and are also dried and exported to China.

After the decks have been cleared up for the night, the shell opener retires to his cabin for his evening meal and to enter up his log of the day's work. I looked with interest at the following entries in one man's book:

"Thursday, 17th. Good stone found."

"Friday, 18th. Very good stone."

And an entry in red ink added weeks later:

"Sold for £3984."

The Funnel Spinnaker

(*Continued from page 71*)

The assumed increase of power by making use of the funnel with an extra sail area was also confirmed. A hole 4 inches in diameter (in the miniature sail) produced a pressure increased to 6¼ percent above that of a normal sail without holes, even in the first experiment.

The two most important factors for obtaining greatest pressure seem to be to get:

1. The most advantageous relation in size of the hole to the auxiliary sail.

2. The most advantageous distance of the auxiliary sail from the hole.

Later on, measurements showed that the best effect is obtained when these two sails are 2½ to 3 inches apart.

Unfortunately, a change in the apparatus made a comparison with former measurements impossible, and we were able only to establish further improvement in the power production of the sail.

In this early experimental stage, it is naturally impossible to judge of the practical value of this funnel spinnaker. In due time, if no disadvantages appear, it should not be difficult to find the most efficient relations of the chief variables.

RESULTS OF THE MEASUREMENTS MADE IN THE WIND TUNNEL OF PROFESSOR JUNKERS ON A SPINNAKER (JANUARY 1931)

Height of measured sail: 600 mm. length of sides
Diameter of sail at the height of the hole: 260 mm.

Spinnaker without funnel

Sail without hole	10270 g. pressure
Sail with hole 20 mm. in diameter	10050 g. pressure
Sail with hole 55 mm. in diameter	9640 g. pressure

Funnel spinnaker

With auxiliary sail with hole 55 mm. in diameter	9900 g. pressure
With auxiliary sail with hole 120 mm. in diameter	10220 g. pressure
With auxiliary sail with hole 160 mm. in diameter	10870 g. pressure

The diameter of the auxiliary sail was 160 mm.; the distance between the sails, 90 mm. However, the effect of the funnel spinnaker was more favorable at a distance of 100 to 120 mm. from the main area.

The 38-Foot Matthews 20-Mile Sport Cruiser Is Powered with the Kermath "175" Sea-Hawk

...*and* CONSISTENTLY ENDORSED BY A HOST OF FAMOUS BOAT BUILDERS

The Matthews "46" Double Cabin DeLuxe Yacht is Standard Powered with the Kermath "225" Sea-Wolf for 20-Mile Speeds

The Matthews Company of Port Clinton, Ohio, one of the most widely known builders of 38 and 46-foot stock cruisers in the world, are recognized for their outstanding ability to build a renowned brand of performance into their boats. Significantly they standardize exclusively on Kermath six-cylinder marine engines. . . . And Kermath power has been their consistent choice for six years. The Kermath Sea-Master 85 horsepower "six" with reduction gear, the Sea-Farer 150 horsepower L-head "six", the Sea-Hawk 175 horsepower valve-in-head "six" and the Sea-Wolf 225 horsepower valve-in-head "six" are specified in both 38 and 46-foot models—provide speeds that range from 12 to 20 miles per hour. Surely a recommendation by such a famous organization of boat builders is a stirring testimonial to the mechanical superiority and rugged dependability built into all Kermath Marine Engines. A trained technical staff will help you select an efficient power plant for *your* boat.

The Matthews Company of Port Clinton, Ohio, Standardize on Kermath Power

SHIPMATE FUEL OIL BURNING RANGES

For some years, there has been a desire among vessel owners to use diesel oil as fuel for the galley range; but nothing that was produced was satisfactory. It is easy to realize the gratification derived when we were able to demonstrate that the SHIPMATE Oil Burning Range was exactly what was sought.

These ranges embody an outstanding achievement in the science of fuel oil burning in small ranges. Never before have such units been offered and now fuel oil burning ranges are available for the small diesel powered boat as well as for the large. The SHIPMATE Fuel Oil Burning Range is ideal for any diesel equipped vessel.

SHIPMATES are made only by

The Stamford Foundry Company
Stamford, Conn.

Established 1830

Samson and Delilah

(*Continued from page 76*)

my hair would hold its "set" for several days if I didn't get into some serious fight or roll on my pillow too much. I motioned Lill to come below into the lobby.

"You can make a weather vane of him," I suggested. "Souse his hair in sugar water and then brush it out astern, and it'll split the wind so he can heft it on those stuns'l ears of his. That'll beat steering by the back of his neck, even if you could shave it!"

Lill would have hugged me, if she'd been that kind, but she only gave me a diamond-studded smile in acknowledgment and told me to relieve Collie at the wheel.

It was darkening fast when Collie came on deck again, and if the watch had been there to see him, he would have taken the skipper for a loup-garou and jumped overboard. For that hair of his, now dried iron hard in its saccharine casting, was streamlined from his poll so that it rose above his forehead and ran aft like a rooster's frozen comb. Sticking out athwartships were those ears of his, like a pair of baby's hands waving "da-da" to some fond papa. They waved equally when the crest was held directly up-wind, and as Collie veered his head a point, the lee ear just fluttered a little while the weather one was blown flat against his head, the gale was that strong. And if Collie turned his head too danged far, well, it careened his noddle right over like a ship in a hard chance!

"All right," he shouted, rubbing his neck mistrustfully, "I'll take her. I'll *have* to take her, all night. But by the Gee, you and Lill will have to con the compass to check our course, and if you don't fetch me up a swig of hot coffee every hour, on the *hour*, I'll wrap this vessel up in a big sea and send her to Davy Jones!"

That was a wild night on deck, and I knew it every time I brought up the bottle of hot coffee to Collie. Looking forward one could see nothing of the schooner, only the glow of a parted sea as it rushed by her sides. Astern, the phosphorescent crests loomed high and ghostly and then swooped hissing under the counter as it came up to meet them. In the hollows, our wake trailed like a luminous serpent hanging from our rudder hance. Almost straight, and that was fine steering on the part of Collie.

As for Collie, now that I think of it, I really did not see him during the eleven hours or more from those last yellow moments of the afternoon till the first yellow moments of the next morning. He was a swearing presence, though I believe he swore only when the faint glow from his cabin lighted the companion momentarily as I opened the doors to come out, thus betraying my coming. Or he may have sworn so that I might locate him the better. I knew where he was, of course, but I was afraid of encountering the spokes of that spinning wheel, and so I would tack for the nigh corner of the starboard dodge-house and thence take my departure crawling from behind for Collie's outspread legs. Lord, what calves he had, a real little Samson aside from his hair, and when he felt my clutch, a hand would reach down momentarily and snatch away the upheld bottle.

Below, all was quiet but for the occasional thump and groan of the rudder. That was after the *Tranquebar* had listed her shapely stern and was coasting down the face of a "big one." Our course, at first southeast, slowly drew more to the southard, and I kept note of its progress. Lill dozed like an old trooper and came to with a sparkling yawn when I prodded her to warm the skipper's coffee over the spirit lamp of her curling iron.

But we emerged, at last, into jaundiced mist-riven day that slowly spread itself over a turbulent sea still crossed in mighty cornhills from the distant trades. In the growing light, Collie took visual form from the unseen

CHRYSLER ENGINES

Installed by 23 leading boat builders in 56 standardized boats

The most enthusiastic recommendation that any boat builder can give a marine engine is to adopt it as standard equipment for his product. Twenty-three of the most prominent builders of standardized boats have placed their unqualified stamp of approval on Chrysler Marine Engines by specifying them for installation in a total of 56 models, varying in size and type from a 17½′ runabout to a 56′ twin-screw cruiser.

American Builders

A. C. F.
30′ Cruiser
39′ Cruiser
46′ Cruiser

CHRIS-CRAFT
20′ Runabout
22′ Runabout
24′ Runabout
26′ Runabout
31′ Cruiser
36′ Cruiser

CORSAIR
32′ Cruiser

DART
18½′ Runabout
22½′ Runabout
30′ Runabout
30′ Sedan
26′ Runabout

DAWN
45′ Cruiser
48′ Cruiser

DUNPHY
17½′ Runabout

GAR WOOD
22′ Runabout
28′ Runabout

HACKER CRAFT
22½′ Runabout
24′ Runabout
35′ Cruiser

JOHNSON
33′ Seaskiff

KING
24′ Seaskiff
28′ Seaskiff

LYON-TUTTLE
24′ Runabout

SEA-SLED
22′ Runabout

TOPPAN
28′ Cruiser

WHEELER
22′ Sedan
27′ Cruiser
30′ Cruiser
34′ Cruiser
37′ Cruiser
40′ Cruiser
49′ Cruiser
56′ Cruiser

WHITNEY WOODCRAFT
36′ Cruiser

Canadian Builders

BARNES
22½′ Runabout
26′ Runabout
30′ Runabout

DIS-PRO
20′ Runabout

DITCHBURN
21′ Runabout
26′ Cruiser
38′ Cruiser

DOWKES
46′ Cruiser
32′ Cruiser

FETTHALL
21′ Runabout

JOHNSON
22′ Runabout

SACHAU
24′ Runabout
27′ Runabout
27′ Cruiser
30′ Cruiser

TAYLOR
29′ Cruiser
33′ Cruiser

AMPLEX MANUFACTURING COMPANY (*Division of Chrysler Corporation*), Detroit, Michigan

Chrysler MARINE ENGINES

CHRYSLER MOTORS PRODUCT

The "Freedom"

The above cut is of the 89′ o.a. schooner *Freedom*, building from our designs at the yard of the Great Lakes Shipbuilding Corporation for Mr. Sterling Morton. *Freedom* represents the highest type of yacht construction, being double planked with mahogany, teak decks and deckwork, hollow spars and Ratsey sails.

The accommodations are the result of most careful study, consisting of a most comfortable but not unsightly deck house, roomy main cabin, two single and two double staterooms. There is an owner's bathroom and a second toilet room aft. The galley is extremely roomy and there is a large forecastle, crew's mess, and captain's stateroom forward.

The ballast is of lead, for the most part outside, and the draft is kept moderate to allow passage through the Erie Canal. The principal dimensions are l.o.a. 89′, l.w.l. 66′ 6″, beam 20′, draft 10′. A 175 h.p. Hall-Scott reduction gear motor, in separate compartment, gives ample power.

If you are considering building either sail or power, may we not discuss this matter with you, especially as building prices are considerably less than a year ago.

John G. Alden

Naval Architect *Yacht Broker*

148 State Street, Boston, Mass.

stanchion-like legs and the vaguely reaching hand that had snatched the coffee bottle from mine, to his grotesque self of the afternoon before, carefully feeling out the wind with his cockatoo's crest. Though his eyes were dulled from strain and fatigue, there lurked in them a dogged glow of victory.

Lill had ordered breakfast in Collie's room, such a breakfast as only an all-solicitous woman can conjure up for her hero. A profane hero who swore, by all the contraband he had ever run, that he would flense the hide from whoever was responsible for his night at the wheel, and use that hide for chafing gear on the schooner's backstays as an example for the rest of the crew. Lill blanched at this and momentarily averted her eyes from the monstrous crest that seemed to be fascinating her with certain possibilities which might have to do with the longish shears that she had bought in Willemstad. The flensing, Collie continued, could wait till we were in quieter waters. Now he would be turning in.

But first he must wash that sugar stuff out of his hair —for how could any man who invariably slept sunny side up keep such a head from flopping over like a fin-keeled yacht on a sand bank? Why, he'd wake up with a crick it would take him a month to get over, and filling the hand bowl in the corner of the cabin, he started to lower his head into the water.

From the hope that faded from her eyes, I believe that all through the night Lill had been praying that her lord and master for once would depart from his usual custom and sleep on his side, as he would *have* to do with his hair that way, and then she could remove that back hair of his in just a few well-managed snips. After that the devil might claim her soul for his own, if he wanted to, as soon as Collie had pried out her back teeth and flensed her lily-white skin for frapping, or what-not. Little did we guess, however, that by another agency, the same which had been warming Collie's coffee all through the night, the desired operation was about to be performed in an even neater and more thorough manner. For the spirit lamp had been left standing just in from the far edge of the bowl and in the daylight we had not noticed that it was still burning after its last tour of duty. Sugar will burn and so will hair, and when you combine the two you have something that is about as inflammable as a celluloid collar.

As Collie bent his head, the foreside of his crest touched the almost invisible flame and with a sizzling "Whoof!" it was ablaze from brow to nape. With a roar of surprise and pain — I chronicle these in their actual order — Collie tried to immerse his head. But the bowl was too small, and he had blown all the water out of it, anyway. Luckily, there remained a considerable dollop hard by in the pitcher, and as I upended it over the conflagration the victim's head came up and struck it with terrific force.

"By the Gee!" bellowed Collie, turning fiercely and rubbing his tortured noddle, "what are you trying to do, burn me and break me up?"

We couldn't answer for a bit. *I* had to laugh first, he looked so funny with no hair to speak of and his ears, as I have already said, standing out like wind scoops from the sides of a steamer. But Lill didn't laugh. She just stared, and when she discovered that I was laughing at her husband she reached for the shears that she had sneaked into Collie's room. No, she didn't open them to cut *my* hair, she grabbed them the way a senorita holds a stiletto and I managed to get up the companionway with just the merest tick in the seat of my pants. They were old ones.

Nemine contradicente, I left the *Tranquebar* at St. George's, and when next I saw her a full year later, Collie's hair was as long as ever, if not a wee bit longer, and every one had taken to calling him Samson.

38-foot 42-mile Commuter—$17000

Just Why

the Combined Resources and Talents of All Other Builders Cannot Reproduce a HACKERCRAFT

30-foot Hackercraft—$5500

26-foot Hackercraft—$4475

24-foot Hackercraft—$3150

1 Even though all were to adopt the expensive genuine Honduras mahogany, which they do not—

2 Even though they used the clear, stout white oak in keels, strut timbers and framing, which all do not—

3 Even though they selected non-shatterable glass in windshields, genuine leather upholstering over double decked Marshall springs in seat backs *and* cushions, which all do not—

4 Even though they followed the more expensive and better method of copper riveting bottoms rather than brass screw fastening, which all do not—

5 Even though they selected the same fine chromium plated hardware and fittings, which all do not—

6 Even though all bottom fastenings were protected by carefully fitted wood plugs rather than deceiving putty—

7 Even though Hackercraft water-tight and collision bulkheads were universally adopted—

8 Even though more copied the general layout and plan, which most have done and more are doing—

9 Even though but one standard of finest hand-wrought workmanship was consistently maintained in every builder's shops—

35-foot Twin-Screw Commuter—$12500

28-foot Hackercraft—$4975

22½-foot Hackercraft—$2495

The result would still be far short of a genuine Hackercraft. Because the Hackercraft has what no other builder can have or buy . . . the permanent style, life and finely balanced design developed by John L. Hacker, N. A. Mr. Hacker, it has been conservatively estimated, in his wide practice of naval architecture, has designed more than three thousand boats, and the models that bear his name are the improved and finished products of a vast and impressive proving ground.

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Outboard Model $18.50 each.

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Model H or J for 35 or 60 M. P. H. $150.00 each.

Ask your dealer and if he has none on hand, write us direct and give us his name.

THE NATIONAL LOCK WASHER COMPANY
40 Hermon Street, Newark, N. J.
4262

How Not To Do It

(Continued from page 66)

For the rest of the day it was "make and mend." The mate shifted a very light and ancient flying jib onto the jibstay, and patched the mainsail, while I tackled the skylight. I couldn't get it back into its original shape, but I thought it might keep out a moderate dew. However, it clearly would not keep out the salt water, so the passenger thought to make himself useful, and found the canvas cover which had been made to fit over it. Unfortunately, he left it loose on deck, and then strolled off and forgot about it till a puff of wind took it over the side. This annoyed the mate considerably, as a leaky skylight in the wettest part of the ship didn't encourage the culinary arts.

It *was* wet, too. We were passing the Kermadec Islands, a place notorious for rough seas, and the wind was shifting all around the compass, which made them extra bad. We were a good deal worried about the sails, wondering how long they would stand the slamming about. At one time we had a real panic. The wind was abeam, at the moment, but we were doing some fine rolling as well as the usual pitching, and the end of our 17-foot jibboom was describing magnificent circles against the sky. There was a school of porpoises coming down-wind at us — it was a fine sight. Simultaneously, a dozen broke out of the slope of an oncoming sea and hurriedly dived under our keel when they saw the obstruction before them. But when a score or more broke water at the same time they collided with each other in their efforts to avoid the ship. One bold fellow, to get out of the mess, jumped over the jibboom. How he failed to go through that wretched substitute jib, which was chopping up and down through all the available space, I can't guess; but he hit nothing.

The only damage done that day was the act of man, not of porpoises. The man thought to turn a reef out of the mainsail, and let go the tackle before he had untied any of the points. I will say that almost alone among my many hands he appears to have owned a knife, for when I came on deck I found half the reef-points cut; but where he hadn't been in time a small whale could have gone through the sail, let alone a porpoise. I came near getting as mad as the crew!

The last scraps of canvas in the ship — the rags of the defunct jib — only just served to mend the mainsail. We had to be more careful than ever; but our troubles were nearly over. On the tenth day we managed to struggle into the Southeast Trade. We had less than 250 miles to go, but we looked forward to two days of peace and quiet. The sails ceased to slam, and the crockery to crash, and we indulged in a gaff topsail over the mainsail; and so, next evening, made our landfall on the Island of Eua.

We couldn't tackle the channels through these till daylight, so I proceeded to take in the gaff topsail. It came down a fathom or so, and then the sheet jammed. I guessed what had happened, because I had seen the mainsail bent. The mate, who had bent it, maintained that the sheet had got around the peak of the gaff, and proposed to go aloft to clear it. (He couldn't have done so; the turns of the peak earring had slipped over the sheave, and jammed the sheet so tight that I had to cut them.) Well, I told him that we should have to lower the gaff on deck to clear it; and he went forward in a mighty huff to do so. He did it thoroughly; he let go every rope he could see. Fortunately, no damage was done, for the topsail blew over the lee fore-brace, and prevented the gaff from falling right down. But it left me a nice mess to clear up, for the perpetrator had gone on strike again, and I saw no more of him that night. I got rather anxious about what was going to happen in the morning.

Again . . .

EXIDE RULES THE WAVES IN YACHTS OVER 100 FEET

In 1930 as in 1929—majority of all yachts over 100 feet, launched in this country, were equipped with dependable EXIDE MARINE BATTERIES

THERE were more Exide Batteries installed on yachts over 100 feet launched in 1930 than all other batteries combined. The reason for this preference? Designers, builders, owners and skippers know the superior qualities of Exide Batteries.

SPECIAL EXIDE OPERATING FEATURE

Exides are operated so they can be floated in one series across the main bus, with suitable generator adjustment. This enables the battery to function automatically and instantly in case of emergency . . . generator failure. The battery also absorbs peak loads on the generator, thus providing smooth operation. The generators charge the battery as required whenever they are in operation, thus making Exides ready at all times to meet every electrical need . . . to give satisfactory service steadily, reliably and economically.

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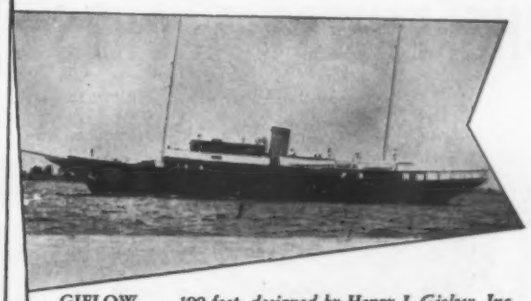
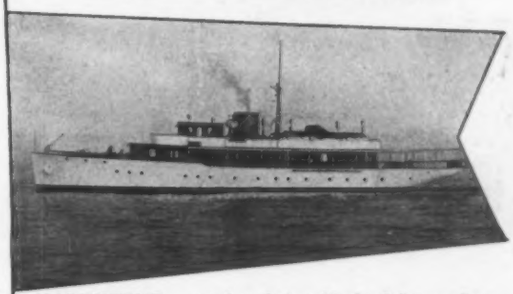
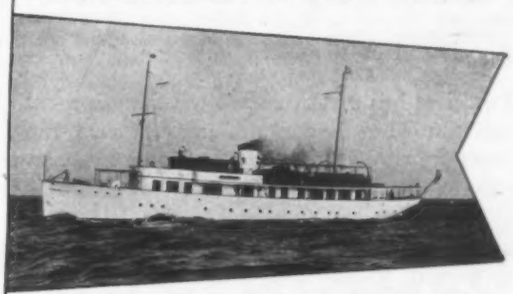
BATTERIES
FOR DIESEL YACHTS



GIELOW . . . *190 feet, designed by Henry J. Gielow, Inc., built by Bath Iron Works Corp. Exide-equipped.*



NORTHWIND . . . *123 feet, designed by Cox & Stevens, Inc., built by Manitowoc Shipbuilding Corp. Exide-equipped.*



JANIDORE . . . *142 feet, designed by John H. Wells, Inc., built by De Foe Boat and Motor Works. Exide-equipped.*

SHOGUN . . . *137 feet, designed by Tams Inc., and built by George Lawley & Son Corp. Exide-equipped.*

HERE ARE ADDITIONAL 1930 EXIDE-EQUIPPED BOATS
100 FEET AND OVER

ACANIA	BIDOU	LANORA	STEVANA
ALTHEA	BLACK DOUGLAS	PLACIDA	SUNSHINE III
ANTARES	GALAXY	ROSEWILL III	SYLVIA
ARAS	HELENE	SARAMAR III	TRUDIONE
ARMINIA	KORANETTE	SHEILA	

The following builders of famous speed and pleasure craft use Exide Batteries as standard equipment:

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DODGE BOATS SEA-LYON
N. Y. YACHT LAUNCH & ENGINE CO.
CONSOLIDATED SHIPBUILDING CORP.
GEO. LAWLEY & SON CORPORATION

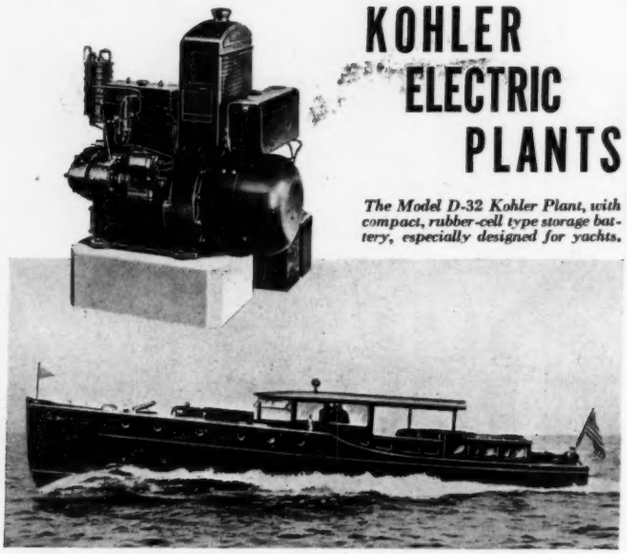
THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia

THE WORLD'S LARGEST MANUFACTURERS OF STORAGE BATTERIES FOR EVERY PURPOSE

Exide Batteries of Canada, Limited, Toronto

REGULAR EQUIPMENT ON THE FINEST YACHTS . . .

KOHLER ELECTRIC PLANTS



The Model D-32 Kohler Plant, with compact, rubber-cell type storage battery, especially designed for yachts.

50-foot cruiser built by the Consolidated Shipbuilding Corporation and displayed at the 1931 Motor Boat Show. A Kohler Electric Plant was installed as standard equipment.

THE first important requisite of equipment chosen by yacht-builders is dependability. Every inch of wood, every joint, every mechanical part must be sound and able to withstand the rigors of rough weather.

That is why Kohler Electric Plants are specified on many of the world's finest yachts. Builders and owners of yachts and cruisers large enough to enjoy the benefits of electricity look to Kohler for this service because they know that Kohler Plants are as reliable as the staunchest plank on board.

In the Kohler Electric Plant you get economy of space—freedom from cumbersome storage batteries —absolute silence when you want it. Standard electric current is generated at 110 or 220 volts A. C. or D. C. Capacities vary from 800 watts to 10 K. W. Current comes direct from the generator or from compact, rubber-cell type storage batteries.

Let the judgment of Consolidated and other outstanding builders guide you in making your yacht a modern "Home Afloat." Send coupon for information especially prepared for yachting and marine interests. Kohler Co. *Founded* 1873. Kohler, Wis.—*Shipping Point*, Sheboygan, Wis.—*Branches in principal cities.* . . . Manufacturers of Kohler Plumbing Fixtures.

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Gentlemen: Please send catalog describing Kohler Electric Plants.

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*Use in which interested*_____

But my first view of a coral island changed all that. It's like the Trade Wind, a thing you can rely on; you feel you couldn't make a mistake about it. The entrance of our channel was marked splendidly by Little Eua, 180 feet high; and then by the breakers on the reef. That's one of the beauties of coral; wherever the sea isn't breaking you know there's water enough to float the *Leviathan;* the reef goes down like the wall of a house. When we got a bit up the channel, beyond the breakers, we saw the other beauty of coral. With the sun behind us we didn't have to go to the masthead; we could see our way in from the deck. Where it was blue there was practically no bottom; where it was pale green there was practically no water; and the line between was strongly defined by a narrow band of purple-brown. At the famous Narrows the water was rather thick, where a three-knot tide has to make a right angle turn, and the indications not quite so clear, but the passage is two cables wide, and well marked.

The harbor launch met us to give us pratique and indicate the best anchorage, and then the mate and passenger went off in my folding canvas boat to arrange for lodgings ashore. I didn't worry when they failed to appear; I had the first peaceful night since I had shipped them.

But next morning I had to get ashore, and I felt in a bit of a fix. I'd been stuck like this before, in Australia and New Zealand, and *there* I'd be stuck forever unless I swam ashore to retrieve my boat. However, there was a chance they might do things differently in Tonga, so I set a flag signal for a boat. There were some smart boys in the Harbor Office. I guess they were only waiting for a sign that I'd finished breakfast, for two men came off right away with a message from the Queen's Harbor Master saying that my own boat was completely demolished and offering to lend me his, and the men in her, for as long as I stayed. I had certainly struck the Friendly Islands. I wished I could stay there forever.

But I couldn't stay long. *Saoirse* is not coppered, there is little range of tide among the islands, and I was afraid of the teredo. So I had to look out for a new crew — having first paid off the old one. This operation was rather a shock to me. I had supposed that my late mate, who had announced that he had no intention of going all the way home with me, as he planned to marry an Auckland woman, would have signed off by mutual consent; that is to say, on payment of his wages up to date. (I might have held him to his contract, but I was afraid of wrecking the ship.) But he had a very different story to tell at the consulate. To cut it short, he wouldn't go, unless I sacked him. So I had to pay him a full month's wages, in addition, and a cabin fare to Auckland in the mail steamer. It just about cleared me out, but I had the best of the bargain, all the same. I saw the fiancé later, and I guess she's not as soft as I am.

I had meant to go on to Samoa and Fiji, but the state of my purse forbade that. I'd have to return to Auckland, pick up my other sails, and get home as quickly as I could. There was no trouble about getting a crew in Nukualofa for the first part of the voyage — the islanders go to Auckland to buy boats for their own trade, condemned racing cutters for the most part, I should judge, and all of them smaller than mine — but I wanted two men who would sign on for the whole trip to Dublin. Rather to my surprise I got them, and after a fortnight's stay bade a reluctant farewell to it all. Yet not quite all. For two days, say 350 miles, I had the Trade Wind, and that is as friendly as the islands, and for ten days more (since none of the New Zealand mail was marked "Urgent") I had the Friendly Islanders, unmixed with the civilization of Auckland.

And the moral of that is that if one gets stranded on the other side of the world one should make a trip to Polynesia.

"RED" WOODWORTH *flashing over the finish line in the record-breaking time of three hours and ten minutes at the end of the 132¼-mile run in the Albany-New York outboard race.*

(Times Wide-World Photo)

SOCONY BANNER GASOLINE drives "Red" Woodworth to record in Albany-New York Race

SKIMMING down the Hudson under the power of Socony Banner Gasoline, Wade ("Red") Woodworth, famed football star of Northwestern University, flashed to a record-breaking victory in the annual Albany-New York racing classic.

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New York San Francisco

PETERS DUVROCK PORTABLE REPEATING TRAP

Intercollegiate Competition in Outboards and Sail Boats

(*Continued from page 59*)

Princeton, Harvard and Yale in the 1930 races, but the utter impossibility of rounding up enough boats made it necessary to turn down the last four applicants.

You see, all that the collegians provide for the regatta are crews and a desire to compete. The sponsoring club has to furnish the boats, a committee to conduct the races, living quarters for the sailors, food and entertainment. This year the Intercollegiate Yacht Racing Association expects to expand its membership and by a new system of competition increase the number of participating colleges. Sectional eliminations, with two or three crews to qualify for the finals, may be resorted to. Or the students may take a leaf from the book of those who conducted the tremendously successful interscholastic championships for the first time last season. Fourteen crews, one each from as many Eastern preparatory schools, were divided into two divisions of seven each. Three trial races were sailed in each division and at the conclusion of these preliminaries the three leading crews in each section went into a three-race final series. Something like this will have to be done if the association hopes to take care of the increased interest in college sail boat racing.

So much for sailing. Let's look over those who prefer motor to wind propulsion for their craft. Until a year ago intercollegiate outboard racing was unknown. Now, thanks to the coöperation of the National Outboard Association with the sporting editor of a collegiate monthly publication, it has a niche all of its own in college sport and a place of importance in the country's annual motor boat competition program. The proper agencies sounded out student sentiment on the idea and got immediate and enthusiastic response.

A few regattas were held on the Pacific Coast and in the Middle West last spring with fair success. Then came the Eastern show at Lake Skaneateles which was to set a new standard for outboard competitive events, and establish the sport so soundly that this June some thirty schools are expected to be represented in the title quest.

The Skaneateles meet was admirably organized and conducted by the Outing Club of Colgate College. The result was a meet of higher than average excellence from a social as well as competitive viewpoint.

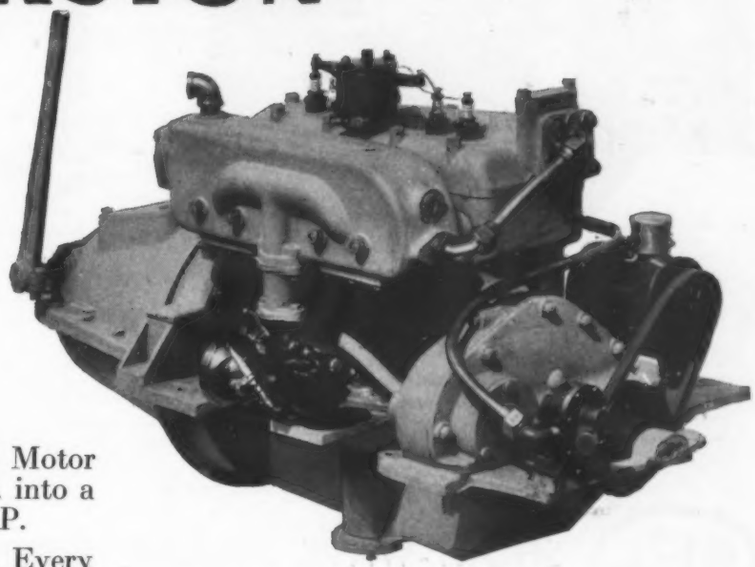
Colgate nosed out Syracuse for the team championship, and individual honors went to William T. Crawford, Jr., of New York City, a Colgate freshman. Then, after the wind-up dinner and prize presentation, a formal organization was effected with G. Reynolds Rowe, of Colgate, as commodore. He is already planning the 1931 regatta and favors beautiful Skaneateles, in the Finger Lake section of New York, for the gathering of the college water speed kings.

Some of the boys who thrilled the thousands who lined the shores of Lake Skaneateles last May found the burden more than they (or their parents) could bear, and, before the long summer campaign was over, switched to the ranks of those who eschewed silver cups, bronze plaques and such, and raced for cash prizes. The collegian, though, has much to spur him on and to keep him in the ranks of the amateurs. One boy told me at Skaneateles a year ago that he could not afford to race through a season, but that as long as he was in school he would make it a point to attend the Eastern Intercollegiate regatta and take part in it even though he did not race again all year. "Nowhere," he said, "can I have so much sport, make such desirable contacts or race under such perfect conditions."

PALMER *Ford* CONVERSION

$365

INCLUDING MOTOR



This engine is a new model A Ford Motor completely converted by Palmer Bros. into a real marine engine. It developes 25 H. P.

Every autoist knows the Ford Motor. Every sailor knows Palmer Engines and Clutches. Palmer Bros. use the outstanding features of both. It combines the technical findings of a great automotive company with the experience of the oldest marine engine builders. This engine should be and is an outstanding converted marine engine.

The Palmer multiple disc clutch with ball bearing thrust is used. It gives 100% power transmission ahead and 80% in reverse. It is completely encased, runs in oil and is dirt and water proof.

The heavy Palmer cast iron crank case protects the bearings and fits the boat timbers. Palmer Bros. have also added their marine pump assembly, water jacketed intake and exhaust manifold and all necessary fitting to transform an automobile motor into an engine for marine purposes.

This engine is on sale by all Palmer dealers. Price $365 complete F. O. B. Cos Cob, Conn.

Should you wish to convert your own Ford model A engine, Palmer Bros. will furnish necessary parts and fittings. There is no cutting, drilling or other machine work required to do the job. Just follow printed instructions and use a wrench . . . . that is all.

All prices F. O. B. Cos Cob, Conn.

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MARINE RADIO
IN THE MODERN MANNER

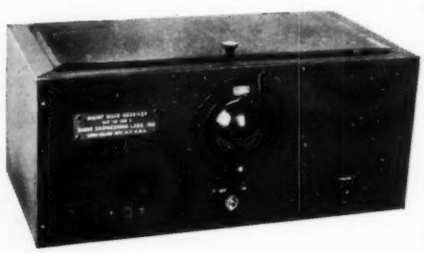
You are cordially invited to inspect this instrument which is on demonstration at our 57th Street Showroom.

PIONEER TRIAD MARINE RADIO

combining the advantages of a radio compass and direction finder with an efficient broadcast receiver. With this instrument bearings are readily obtained from the government radio beacons or broadcast stations. Wavelength range approximately 200 to 1250 meters, covering all broadcast stations, time signals, weather reports and distress signals. A loud speaker is provided, affording excellent tone quality on music and speech.

Price and descriptive literature on request

REL SHORT-WAVE MARINE RADIO

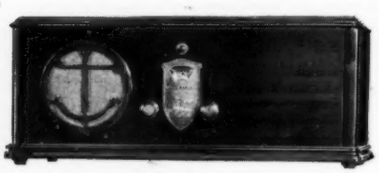


The Radio Engineering Laboratories, Inc. have developed this receiver after much careful experimental work. Its outstanding features are: Low cost, one dial control, broadcast waves as well as short waves (time signals and weather reports on short waves), tuned radio frequency, screen-grid detector, two stage audio amplifier. With a good antenna European broadcast stations may be heard very consistently. Employs but four tubes and is very compact. Each individual part is either sealed in an insulating compound or coated with insulating lacquer; thus these sets can be effectively employed in tropical climates and locations where atmospheric conditions tend to deteriorate apparatus.

Price, less speaker and accessories, $85 (including coils for 16 to 87 meters)
(Broadcast coils, $12 (covering 200 to 550 meters)

Resistors are available to obtain filament supply from 32 or 110 volt DC systems

BOSCH RADIO—THE CRUISER



Designed and constructed throughout for sea-going service. The material used has been treated to resist the effects of moisture and salt air. All internal units are firmly assembled to withstand continual vibration and motion in marine service.

Price, including built-in speaker, $80, less accessories

SALON ENGINEERING SERVICE

MODERN YACHT EQUIPMENT

119 West 57th Street New York City

The New Fleetwing Forty

The new Fleetwing Forty has been developed through the last few years into a compact ship with suitable accommodations for a party of six to eight persons. The enclosed bridge deck, a feature of the De Luxe model, makes possible additional accommodations. As these boats are arranged there is a spacious cabin both forward and aft, with a lavatory and toilet adjoining each. The berths in the after cabin will accommodate four adults very comfortably, while two are accommodated in the forward stateroom. In the event that a paid hand is carried on the boat, an extra berth is located in the engine room.

Amidships will be found a large galley which can be closed off from the rest of the ship. It contains an excellent range, together with a refrigerator of large capacity, as well as the sink, dish racks, cupboard space and the usual other appointments of a well-fitted galley.

The power plant is well placed and located under the floor of the deckhouse. This is one of the Fleetwing Peerless 6-cylinder engines, which is rated at 175 h.p. on a bore and stroke of 5 by 7 inches, and is sufficiently powerful to make it possible to guarantee a cruising speed of 16 miles.

Electric light is supplied throughout the boat, and a Homelite generating set is used to keep the batteries properly charged without calling too heavily on the generator attached to the main engine. The construction of the hulls follows the most modern boat-building practice and a special feature of the design, the spoon bottom, permits them to be driven very easily without excessive motion in rough weather.

Marine Railway and Repair Service at New London

The plant of the Electric Boat Company, located directly across from New London, is ideally situated and is now equipped to store, repair and outfit yachts of all sizes. The yard is especially adapted to the fitting out of yachts. The plant property extends for over one-half mile along the eastern shore of the Thames and lies at the southern end of the town of Groton. Painting and varnishing can be done with the minimum risk of dust and dirt. Several berths are available; some with crane facilities, with truck transportation to the ship's side, and others isolated so that the work to be done may be carried out as desired by the master. The dry-docking, joiner and painting work are supervised by a yachtsman who has sailed his own boat in the Bermuda Race.

The services of an experienced compass adjuster are available at all times, and a complete equipment of compensating magnets for all sizes of compasses is kept in stock.

Hydraulic Steering

The American Engineering Company has developed new hydraulic steering telemotors. *Avalon*, a recent design from the board of Cox and Stevens, has been successfully equipped with this steering device.

A ⅜-inch tubing conveys the hydraulic impression from a telemotor in the wheelhouse to another telemotor aft. The plungers and cylinders of the forward telemotor are concealed behind a polished bronze column of graceful lines. A new feature, an indicator visible to the wheelsman, travels across the driving head, marking the position of the rudder at any time.

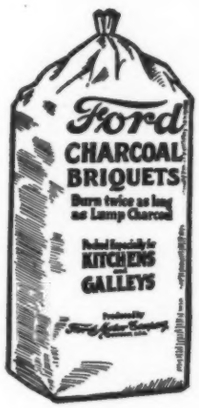
Both forward and after telemotors are of a new design, developed especially for yachts by the American Engineering Company.

Veteran yachtsmen use this better galley fuel

CONSIDER the definite advantages which have made Ford Charcoal Briquets so popular. Made especially for yachting use, they give intense heat, and burn twice as long as lump charcoal. They consume entirely; burn without smoke or fumes; leave no clinkers and practically no ashes.

Veteran yachtsmen use them always—say they are the ideal galley fuel. Their long-burning quality makes them economical; saves storage space. And they're clean to handle; packed in convenient, sturdy paper bags. No dust.

The next time you put out, have a supply of Ford Charcoal Briquets in your galley. You can get them from any of the dealers in the ports listed at the right. Save the list.



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John Girdler Coal Co.	Beverly, Mass.
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Randall & McAllister	Portland, Maine
W. B. Fonda Co.	St. Albans, Vt.
Superior Ice & Fuel Co.	Superior, Wis.
Duluth Ice & Fuel Co.	Duluth, Minn.
Marshall-Wells Co.	Duluth, Minn.
Burkard Coal Co.	Atlantic City, N. J.
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Chemical Charcoal Co.	Buffalo, N. Y.
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Viger Coal & Wood Co.	Detroit, Mich.
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F. Hurlbut Co.	Green Bay, Wis.
Wisconsin Ice & Coal Co.	Milwaukee, Wis.
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C. Reiss Coal Co.	Sheboygan, Wis.
Badger Fuel & Supply Co.	Kenosha, Wis.
Central West Coal Co.	Menominee, Mich.
Gilbert & Cole Co.	Marblehead, Mass.
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F. B. Spear & Sons	Marquette, Mich.
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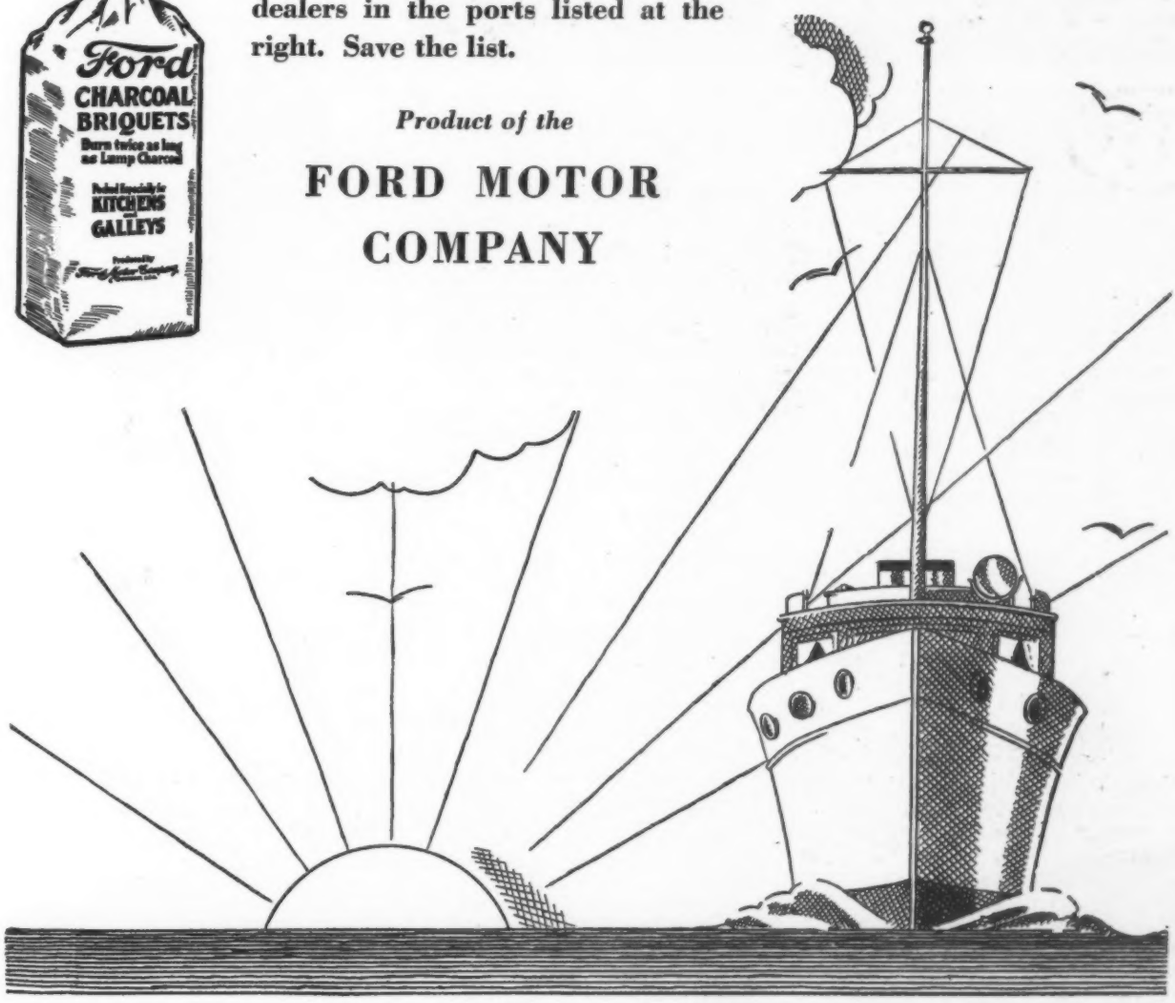

Popular Faces are *shaved with* Barbasol

**"We sing the praises of Barbasol because it's the modern shave — in the quick tempo of today — softens the beard like magic and makes the hairs 'come clean' without a struggle — no pull; no scrape; no lather, brush or rub-in. . . . And when you see our* smile — *man! It's because our faces feel so* FINE, *when Barbasol has given our chins that spotlight look."*

Guy Lombardo and His Royal Canadians

**Barbasol testimonials are not paid for*

GUY LOMBARDO AND HIS ROYAL CANADIANS, *radio and recording artists extraordinary, known the world over for their unique style of rhythm and musical interpretations, now playing at the Hotel Roosevelt in New York City. (Presented through the courtesy of the Music Corporation of America)*

SOME men never have that seedy look as if they needed a shave. How do they do it? Ten to one they're Barbasol Believers, *because* Barbasol is so *easy on the face* that *two shaves a day* won't hurt the tenderest skin, planted with the toughest whiskers.

Like magic this new, quick, modern shaving cream softens the beard while holding the hairs straight up to the blade. Crisp and easy the razor slides along; no pull; no scrape. Its wonderful ingredients *protect* your face. Your skin actually feels *better*, softer, more relaxed — after the Barbasol shave.

And Barbasol has banished forever the old shaving chore. No messing around with soap and lather; no brush; no rub-in. It's so quick and easy to use that the morning shave is a pleasure instead of a painful duty. That's why the Barbasol Believers have made it one of the fastest-selling shaving creams in America.

Follow these directions and you'll follow the crowd

1. Wet your face and leave it wet . . . **2.** Spread on Barbasol. Don't rub it in — just be sure it's spread on *evenly* between the hairs . . . **3.** Wet a good blade and — SHAVE.

That's all you have to do to get the finest shave in the world. It's simple, easy, quick. Try it today. Generous tubes at all druggists', 35c and 65c, will quickly make YOU a Barbasol Believer, too.

FREE A refillable Tefra Toothbrush, value 75c, with your first name or initial on handle. Finest quality; cuts family toothbrush bill in half. Mail entire empty Barbasol carton (35c or 65c size, or jar) with your name and address. We will mail toothbrush absolutely free with your first name or initial engraved on handle.

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Hill-Diesel Service in New York

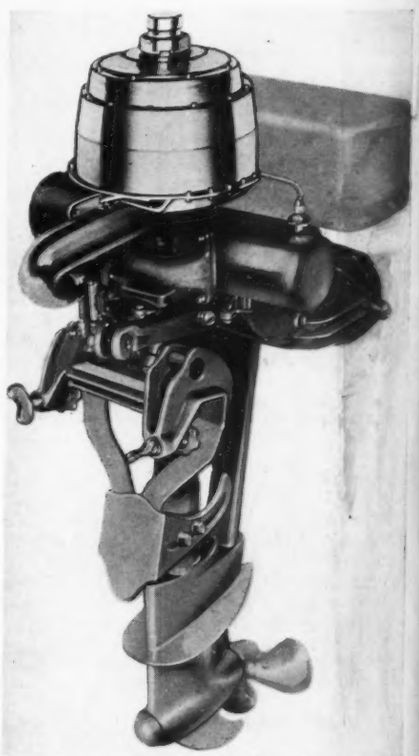
In order that they may better serve the trade in the eastern states, maritime provinces, Atlantic seaboard and Gulf coast, the Hill-Diesel Engine Company have established a direct sales office in New York City. The new office is located at 370 Lexington Ave., at 41st Street, where a number of the smaller engines will be exhibited.

A complete stock of spare parts for Hill-Diesel engines will be carried at the New York headquarters.

Eclipse Inertia Starter for Outboards

The Eclipse Aviation Corporation, of East Orange, N. J., announces a new Eclipse starter for outboard motors. The device, which resembles a miniature beehive, is small and compact, light in weight, is easily installed in a few minutes' time, and is adaptable to any existing model of outboard motor. There are no wires, nothing to get out of order.

Exhaustive tests with the Eclipse device have demonstrated that it will start even the largest motors. It is an inertia starter, adopting the principle used in airplane starters.



The Eclipse inertia starter can be fitted to all outboards

New Electric Plant Does Double Duty

A combination service — current for a number of lights, without operating, and power for heavy duty from the generator after the plant has been started automatically — is offered by the new model D-32 Kohler electric plant, just announced by the Kohler Co., Kohler, Wis.

This new power unit meets special needs on yachts. Its service provides that a few lights can remain burning for long periods

(*Continued on page* 134)